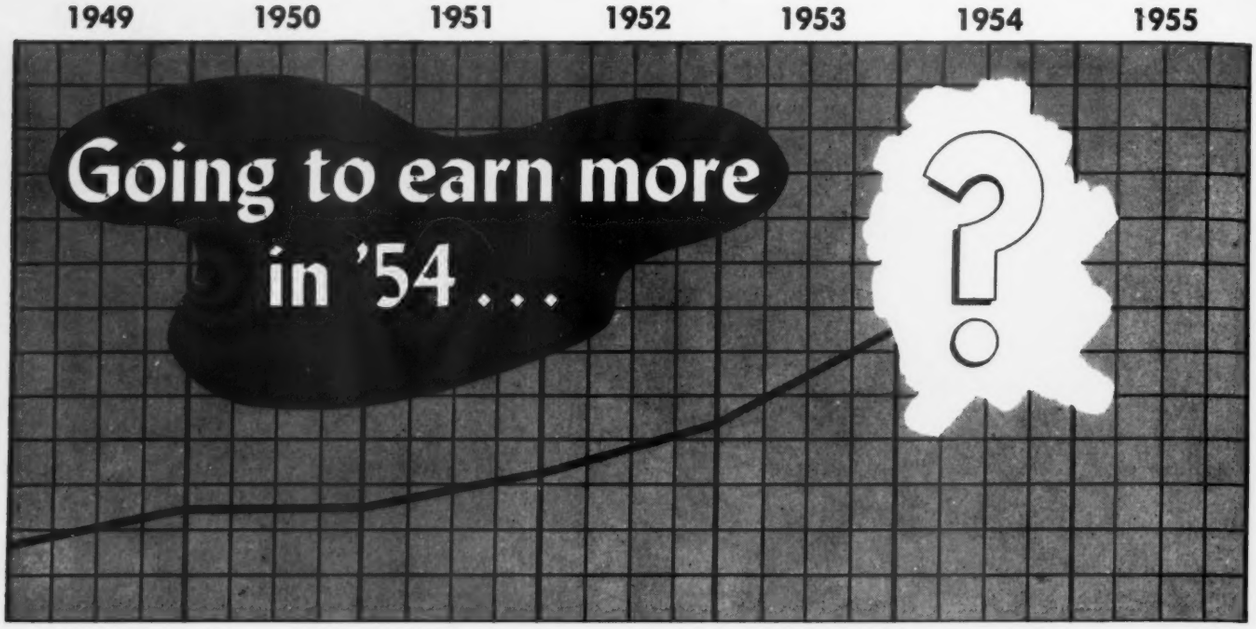
ANNUAL PRINTING PLANT PLANNING and IMPROVEMENT NUMBER

PRINTING EQUIPMENT *Engineer*

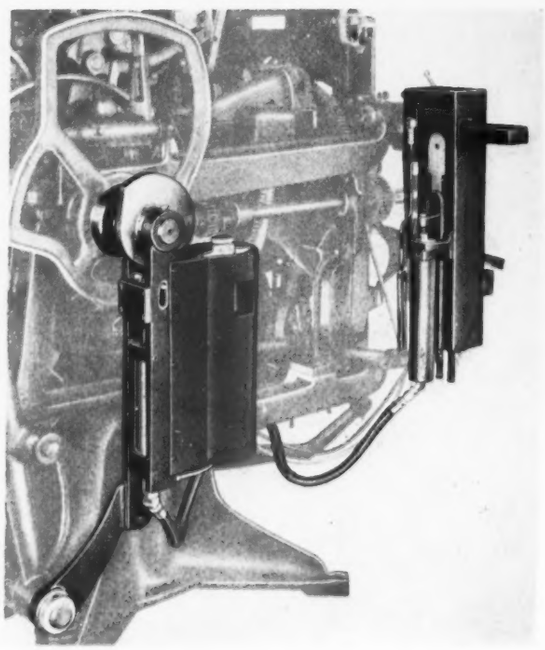
MARCH 1954

An Industry-Wide Technical Publication



or is out-of-date equipment going to squeeze profits out in this year of greater competition?

Leaders in the Graphic Arts Industry predict a squeeze on profits for those printers who have not modernized their equipment. Ad alleys and job composing rooms operating line-casting machines without Quadders are not prepared for maximum production at competitive costs. The Hydraulically Actuated STAR Quadder is a real profit-producer — users have reported as much as 100% greater output after installation. Why not be ready with the most modern equipment available? STAR Quadders are the finest composing room investment you can make.



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YOU NEED THE BEST IN EQUIPMENT!

STA-HI's Master Former is a modern, precision production "tool". It helps stereotype craftsmen in large plant or smaller shop to consistently turn out **better mats** and **better plates** that just naturally make for **better printed newspapers.**

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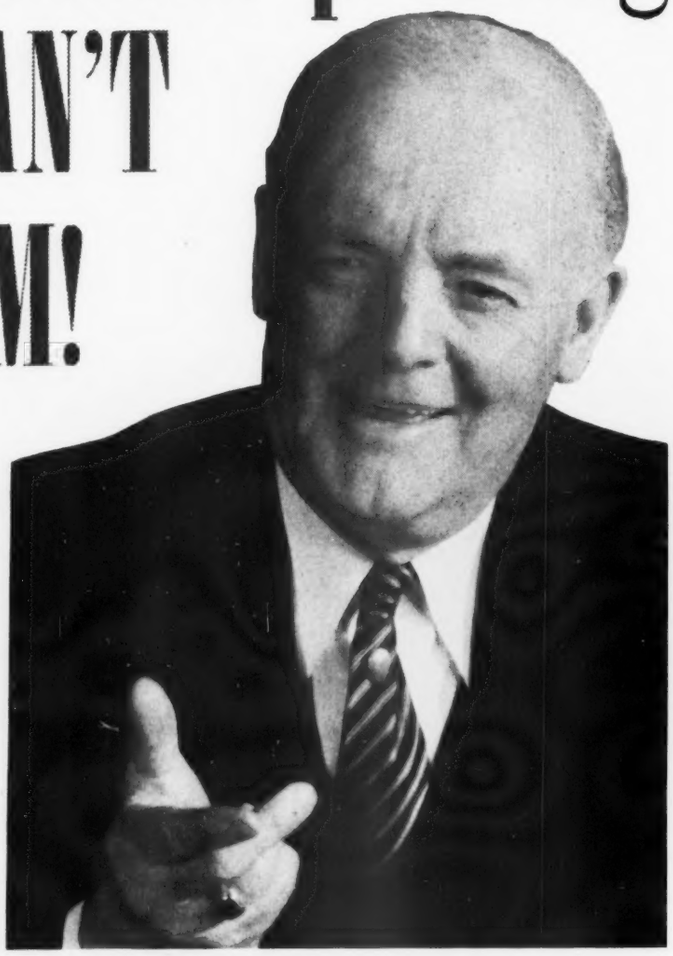

That's the verdict in hundreds of leading printing establishments large and small where AMERICAN Summer ROLLERS are used. Experience has proved they've got what it takes to take the worry out of hot weather presswork. They're built to stand up . . . to perform reliably . . . to give complete satisfaction. That's their reputation . . . and they've justly earned it. See for yourself. For less severe conditions, order AMERICAN Regular Composition or AMERICAN Special Composition; or, for tougher conditions, get AMERICAN Hi-Speed. Take a tip from users who KNOW . . . equip your presses with AMERICAN ROLLERS this summer for real service. Order yours now.

AMERICAN ROLLER CO., *1342 N. Halsted, Chicago 22 • 225 N. New Jersey, Indianapolis 4*

Staude "1000"

ROTOGRAVURE PRESS

COMPLETE INLINE EQUIPMENT FOR CARTONS . . . WRAPPERS . . . LABELS

- *Designed to run at 1,000 ft. per min. . . .*
- *Integral assembly for fast changeover . . .*
- *Printing width: 26" to 42" . . .*
- *Circumference: 23" min.; 46" max. . . .*

Heavy duty design . . . exclusive doctor blade mounting for easy accessibility . . . 360° running register . . . frictionless ball bearings used throughout . . . color units on individual bed plates . . . additional units easily added at any time . . . fast makeready changeover time. These are only a few of the features that add up to more profitable volume for your plant. A Staude representative can show you how you can improve plant efficiency with the "1000".

E. G. Staude MFG. COMPANY, INC.

2675 UNIVERSITY AVENUE
ST. PAUL 14, MINNESOTA

See what the St. Paul Dispatch and Pioneer Press says about

WOOD PRESSES and AUTOPASTERS!

St. Paul Dispatch
St. Paul Pioneer Press

April 20, 1953

I. Tornberg, Vice President
Wood Newspaper Machinery Corporation
501 Fifth Avenue
New York 17, New York

Gentlemen:

We are now starting our 21st year as users of Wood Presses and we just have to tell you how pleased we have been and are with their performance. You will be interested to know that our percentage of successful pasters consistently exceeds 99%, which we think is exceptional inasmuch as we do not use a rewinder.

Best personal regards.

Yours very truly,

A. E. Rosene
Production Manager

AER:lk

Naturally, we're proud and pleased to receive letters like this one from a newspaper like the St. Paul Dispatch and Pioneer Press. Other newspapers tell us the same story . . . that their WOOD presses and other equipment is providing excellent production . . . operating smoothly, economically and *steadily*.

It takes skill of the highest order to build presses and equipment like ours . . . machinery that is world-renowned for its mechanical excellence. Over the years, WOOD pressroom, reelroom and stereotype equipment has proved its worth in many of the leading newspaper plants here and abroad.

WOOD METROPOLITAN COLOR – ADAPTABLE PRESS UNITS provide heavy-duty high-speed facilities for modern newspaper printing.

Our sales engineering department can be of real help to you. Why not consult them? And . . . contrary to rumors, WOOD prices are strictly competitive. Our quotations may afford you a pleasant surprise!

IF IT'S Wood IT'S GOOD

Send for literature describing WOOD newspaper machinery

WOOD NEWSPAPER MACHINERY CORPORATION

PLAINFIELD, NEW JERSEY • SALES OFFICE: 501 FIFTH AVENUE, NEW YORK 17

PRINTING EQUIPMENT *Engineer*

March 1954

An industry-wide technical magazine published especially for management, production and mechanical executives responsible for printing production and the specification of equipment and supplies used in the commercial, magazine, private plant and daily newspaper fields.

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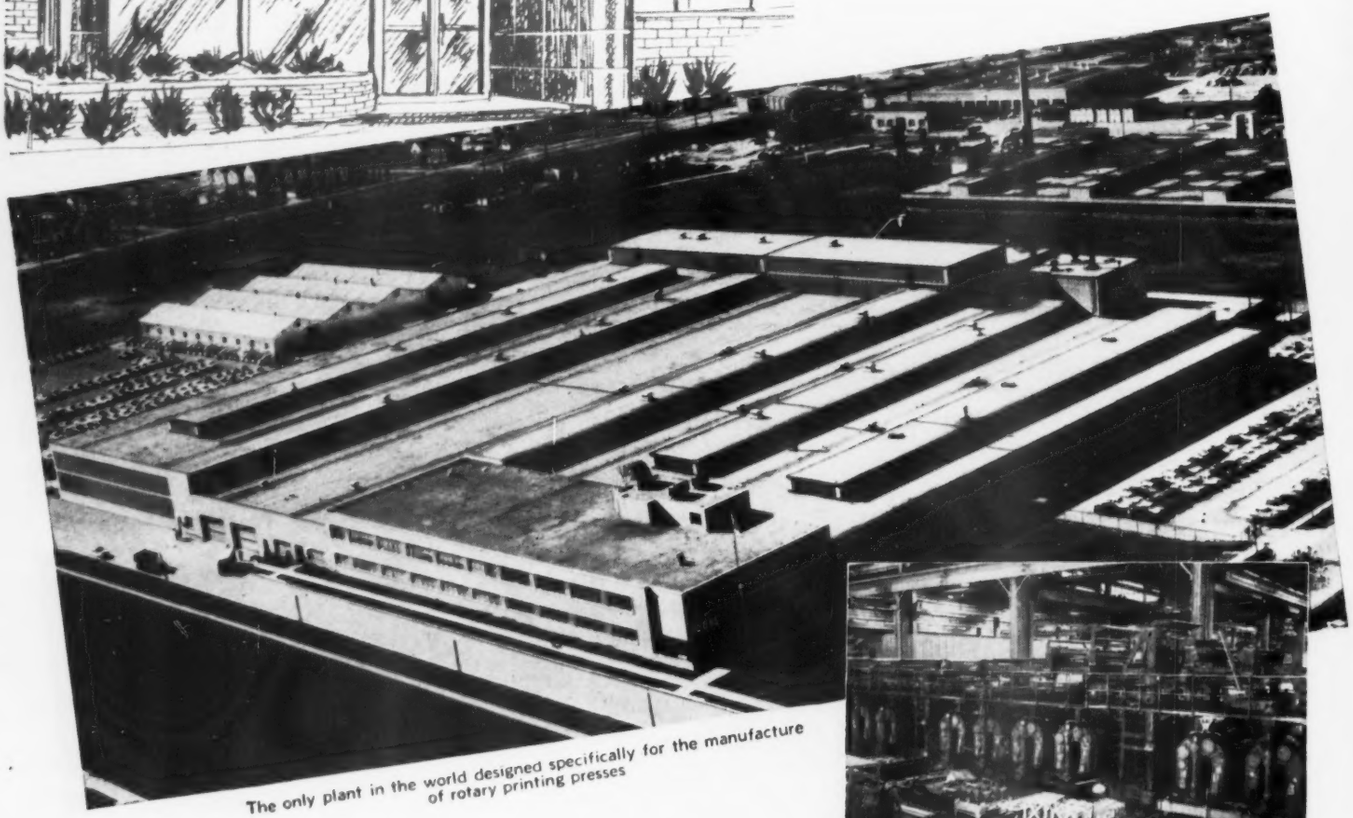
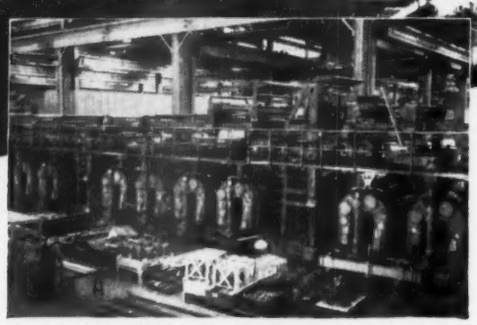
AN INDUSTRY-WIDE TECHNICAL MAGAZIN

GOSS ... an old name ... a new setting



The only plant in the world designed specifically for the manufacture of rotary printing presses



First HEADLINER Press erected in the new Goss plant

In recent weeks The Goss Printing Press Company completely settled in their new building. This new plant indicates the tremendous growth that has taken place since Goss rented very small quarters for their first six years of business. This new plant has been the result of Goss's constant endeavor since 1885 to modernize and improve all Goss products . . . and the consequent universal acceptance of these Goss products by the free world's press.

Goss's new plant is the most modern of its kind in the world—designed for the sole purpose of research, development and production of Goss newspaper, magazine and rotogravure presses.

This story could not have been written in any other country. For 69 years, you have been helping us write this story . . . and we thank you for making it possible. And may we offer a most cordial invitation for you to visit this new plant when you are in Chicago? Call our new number, BIshop 2-3300 and one of our cars will pick you up at any hotel, station or airport. We are looking forward to showing our many friends and customers our new home.

Portion of 120" planer machining 32 HEADLINER side frames

Glimpse of heavy machinery department

THE GOSS PRINTING PRESS COMPANY

5601 West 31st Street, Chicago 50, Illinois
220 East 42nd Street, New York 17, New York
55 New Montgomery Street, San Francisco 5, Calif.
London and Preston, England

LUDLOW design

96 Point

FINER Education 4

72 Point

LINES for advertising

60 Point

PRESTIGE desired by all

48 Point

BOUGHT by print dealer

42 Point

MODERN designs in type

36 Point

STRIKING New display ad

30 Point

Flexibility In Typeface Sizes

Think of it! All the type sizes shown on this page—4 point to 96 point inclusive—are obtainable from a single Ludlow equipment, and this without preliminary typeface manufacture or purchase. This is just another excellent example of the unusual flexibility of Ludlow operation, as all sizes 4 point and larger were produced without machine or mold changes. If desired, for close-fitting lines smaller than 12 point there is an easy mold change. With the Ludlow, the compositor handles "takes" of a variety of type sizes and styles, or all of one size with equal facility.

EXHIBITION of rare prints

24 Point

DEMANDS far more production

18 Point

LUDLOW slugs are easy to make up

14 Point

NEW EQUIPMENT for the modern plant

12 Point

AUTO CRASH kills state representative

10 Point

KOREAN POLICY taken up by our senate

8 Point

SUPERINTENDENT praises the Ludlow system

6 Point

Ludlow Typograph Company 2032 Clybourn Ave., Chicago 14

MULTIPLE forms speed production

4 Point

Signaling Device

In a 6-page, illustrated brochure published by Proebsting, Taylor, Inc., called The PAX Code Call Service is described how personnel can quickly be reached anywhere in the plant or office. This is done by means of a signaling device that is part of an internal business telephone system. For further information, please mention PEE No. 71 in your request.

Inc-O-Lite Daylight Fluorescent Inks

Made for letterpress printers by The Inco Co., the Inc-O-Lite daylight fluorescent inks are claimed to print effectively in one impression. Colors available are canary yellow, golden yellow, brilliant orange, flame orange, fire red, ruby red, chartreuse and brilliant green.

Sponsor states they may be used on posters, displays, covers, inserts, car cards, folders, labels, tags, direct mail pieces and many other kinds of letterpress printing.

The following claims regarding Inc-O-Lite inks are made by sponsor: (1) In tests, outdoor posters and signs showed no fading during exposure to direct sunlight for over 60 days; (2) 1 lb. covers from 120 thousand to 180 thousand solid sq. in., depending upon color and paper used; (3) Inks will remain stable in the can and will keep fluorescence and good printing properties over a period of many months; (4) Jobs printed with Inc-O-Lite can be stored indefinitely if not exposed to light.

Equipment and Supplies

If you wish additional information concerning equipment, supplies and/or technical literature, please make your request to PRINTING EQUIPMENT Engineer, 1276 West Third St., Cleveland 13, O.

Challenge 265-305 Lever Cutter
Diamond (Hand Clamp) Power Cutter
Diamond (Hydraulic Clamp) Power Cutter
?
Challenge 370 Automatic (Hydraulic Clamp) Cutter
Challenge 265-305 (Hydraulic Clamp) Power Cutter
Challenge Pony Lever Cutter

HOW BIG

is your cutting problem?

Challenge brings to your plant the results of more than 50 years' experience in the design and manufacture of precision cutting equipment. From lever cutters in bench and floor models . . . to power cutters with hand or hydraulic clamp . . . and the new automatic cutter with hydraulic clamp . . . Challenge superiority is always in evidence.

Choose from 7 popular styles and 6 sizes . . . but choose a Challenge — *the most famous name in Paper Cutters!*

THE CHALLENGE MACHINERY CO.

Office, Factories and Show Room

GRAND HAVEN, MICH.

Challenge TRADE-MARK ®

752

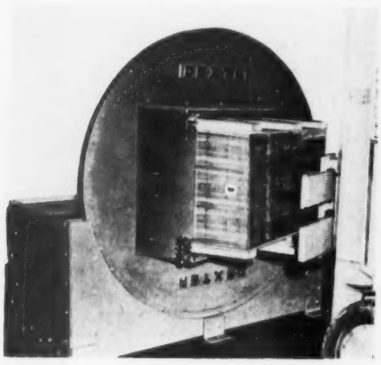
Over 50 Years in Service of the Graphic Arts

DEALERS IN ALL PRINCIPAL CITIES

To achieve the most striking effects, it is suggested that the fluorescent colors on the exposed surface be surrounded with at least 50% black or dark contrasting colors. Greatest effects are secured by covering not more than 10% to 20% of the surface exposed to the eye. Further information will be furnished gladly, but please mention PEE No. 72 in your request.

Pack Turnover

A two-color, four-page circular describes the Dexter Metal Sheet Pack Turnover. The folder contains complete operating



data, electrical specifications, shipping data and floor plan. According to the Dexter Folder Co., the machine will turn a 6000-lb. pack of metal sheets in less than 30 seconds. The Pack Turnover is said to handle metal sheets from 16 by 16 in. to 36 by 44 in. of any thickness. Please mention PEE No. 77 in writing for further information.

Adjustable Ramps for Loading Docks

Two types of adjustable ramps, designed to bridge the height difference between loading docks and truck or trailer, are the subject of a two-color, four page bulletin prepared by Rowe Methods, Inc. One is known as the Adjust-A-Dock. It is designed to become a part of or an extension of existing loading docks. The other, called the Adjust-A-Truck, is built into the pavement in front of the loading dock. Either the dock or the truck itself can be adjusted to the same level.

Adjust-A-Dock units may be equipped with non-floating, manual floating or automatic floating operation according to the requirements of each installation. In

(Continued on Page 12)

Biggest Harris press ever built prints five colors in accurate register

...with the help of TIMKEN® bearings

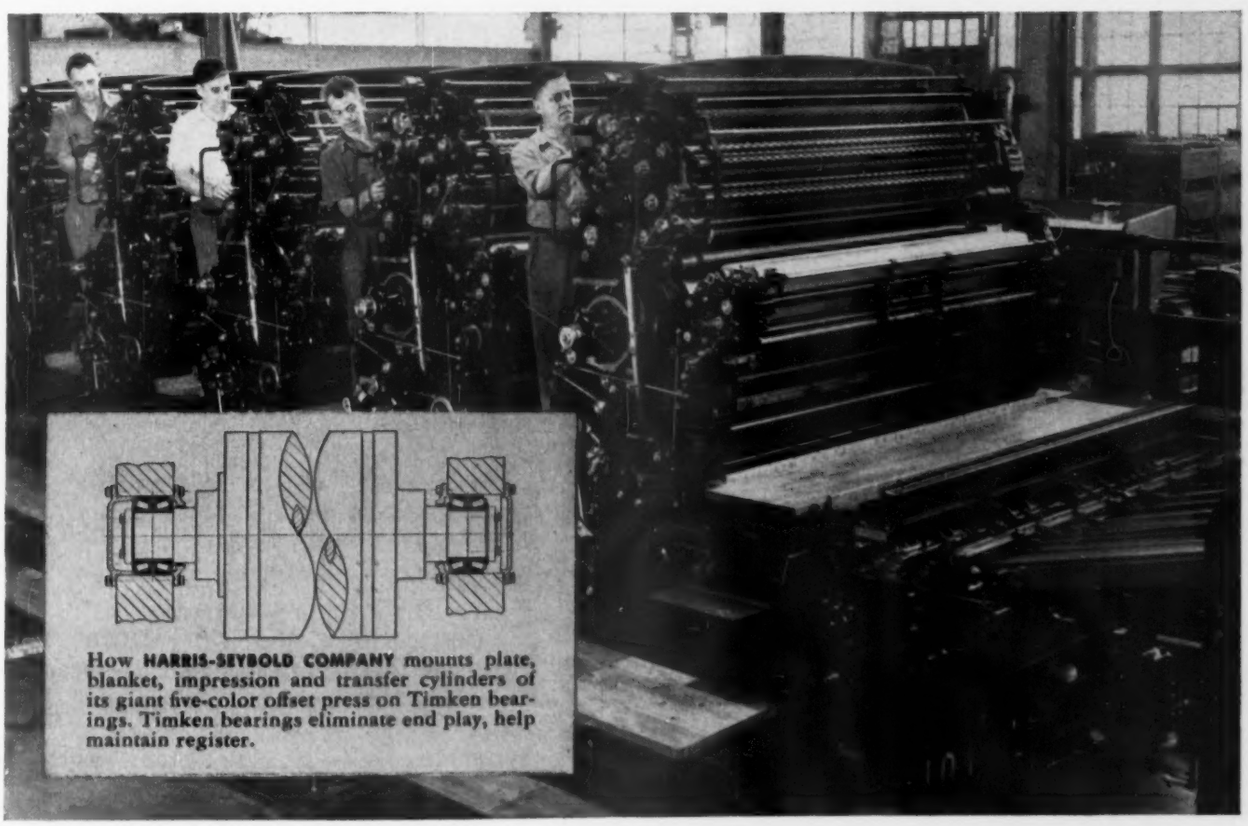
HARRIS-SEYBOLD helped maintain register in this giant 5-color offset press by mounting the cylinders on Timken® tapered roller bearings. The taper makes it possible to completely eliminate cylinder end play. Timken bearings take *both* radial and thrust loads in any combination.

At final assembly the bearings are adjusted so that no sidewise movement of the rollers is possible. Not even temperature changes will cause lateral movement.

This 5-color press, installed in Stretcher-Traung Lithograph Corp.'s San Francisco plant, is the largest of its kind ever built by Harris-Seybold. It's fast, too. There are no speed restrictions due to bearings. The precise rolling motion of Timken bearings, and their incredibly smooth surface finish, practically eliminate the friction which creates heat. Low friction can also substantially reduce the inching load and cut power bills.

With Timken bearings, the lubrication systems of presses are simplified and maintenance is reduced. No other bearing gives you ALL the advantages of Timken bearings. Look for the trade-mark "Timken" on every machine you build or buy. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



How **HARRIS-SEYBOLD COMPANY** mounts plate, blanket, impression and transfer cylinders of its giant five-color offset press on Timken bearings. Timken bearings eliminate end play, help maintain register.

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

PROFILOGRAPH TRACE, GOOD COMMERCIALLY GROUND FINISH (5,000 X VERTICAL, 30 X HORIZONTAL)

PROFILOGRAPH TRACE, TIMKEN BEARING FINISH (5,000 X VERTICAL, 30 X HORIZONTAL)

OPTICAL FLAT, PERFECT FINISH

SMOOTH TO MILLIONTHS OF AN INCH

Surface finish of high quality Timken bearing rollers and races is so smooth that it takes a profilograph to measure its smoothness. This instrument measures surface variations to a millionth of an inch, as shown at the left.

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ↓ AND THRUST →○← LOADS OR ANY COMBINATION

Decitron

. . . INDUSTRY'S MOST RELIABLE ELECTRONIC COUNTER

Model D1
Counts up to 20 units per second: Other models up to 5000 UPS.

Model P2
Counts in any desired total 1-100. Other models 1-1,000,000

Model D2144
Double Decitron with 12 place tubes, counts gross lots as one unit on totalizer.

Model P4W
Desired counts by units 1-10,000 and wired-in warning system.

New, highly perfected Decitron electronic counters cover every counting need . . . from pills to case lots — in any quantity — at amazing speeds (up to 6000 units per second.)

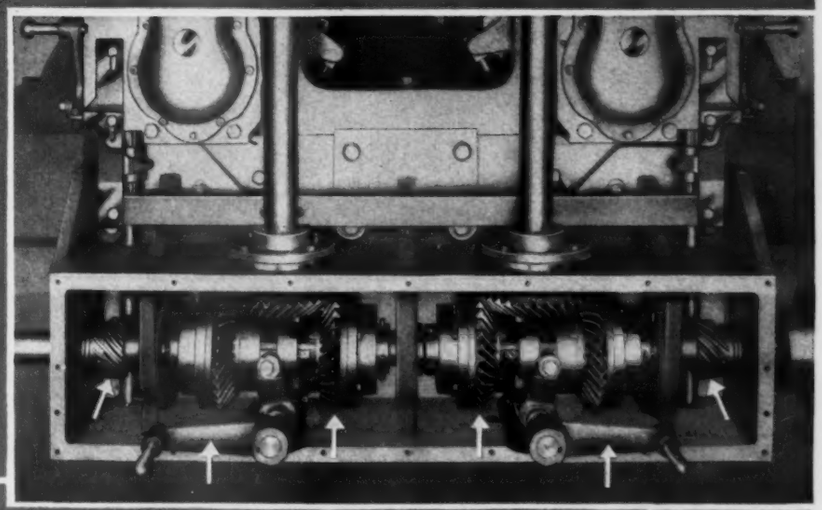
Preset counters afford desired total counts i.e. dozens, fiftys, gross lots, etc. Lineal footage counters totalize production of paper, cloth, etc. Warning systems and other circuits can be energized by these counters if desired.

Write today — we want your counting problem.

POST

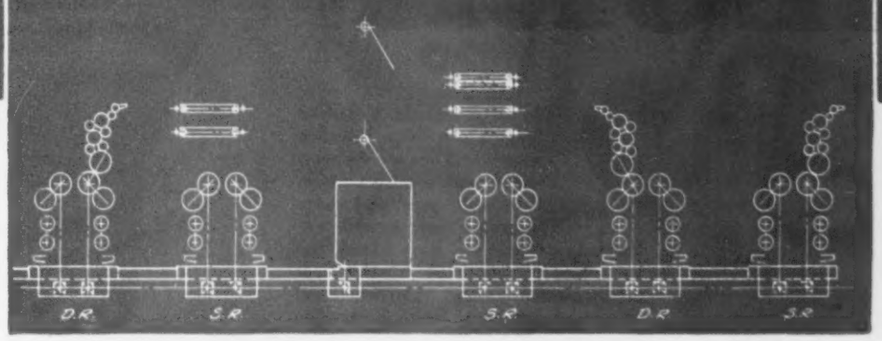
ELECTRONIC PRODUCTS DIVISION
POST MACHINERY COMPANY
Beverly, Massachusetts

Today— more than ever the swing is to COLOR



- and for Color at its best, it's

SCOTT



One Example of Equipment for Variable Color Page Location

The above diagram shows a press equipped to enable any two adjacent units to print 4 colors on either side of one web and allowing the turning over of one-half of the web when desired to vary the color page location.

FOR more than 60 years Scott has been designing and building newspaper color printing equipment. The fruits of this continuous development are readily apparent in the many superior mechanical features exclusive with Scott Presses.

The illustration above is a splendid example of the simplicity in design and convenience of operation of Scott Reversible Drives — a simple flip of a lever outside the gear box does the trick!

All gears are always in correct mesh. The flexibility of Scott Press units in combination, to enable wide selection of color page location, derives from long experience in the development of color press equipment.

And so it goes, through a long list of features, with sound mechanical design and sturdy construction, assuring long, satisfactory service and quality printing from every unit of Scott equipment.

★ *A New Fully Descriptive Brochure is YOURS for the asking* ★

Buy with CONFIDENCE - - - Buy SCOTT

WALTER SCOTT & CO., INC.

PLAINFIELD, NEW JERSEY

5-54-1

Lost man hours and heavy compensation claims are a high price to pay for pressroom accidents

RAISE SAFETY RECORDS...
CUT INSURANCE COSTS with
ALGRIP

ALGRIP Abrasive Rolled Steel Floor Plate installed wherever floors are slippery, ends crippling pressroom accidents at once—and chops down high insurance costs as well.

Plants nation-wide, have found that Underwriters' approved ALGRIP floor gives true foot safety—even when wet or slicked with ink mist . . . even on steep inclines.

The reason is hundreds of tiny abrasive particles impregnated *to a controlled depth of penetration* into tough, lightweight steel plate, giving each square foot of ALGRIP an abrasive "grinding-wheel" grain surface that *stays* non-slip! And ALGRIP's surface won't become smooth because hard wear only exposes new gripping particles . . . an exclusive ALGRIP feature.

Investigate ALGRIP now. You'll find it pays for itself in savings on insurance premiums. Mail this handy coupon today for full details. There's no obligation.

A.W. ALGRIP
Abrasive Rolled Steel Floor Plate

ALAN WOOD STEEL COMPANY
CONSHOHOCKEN, PA.

Please send Booklet AL-30 on cutting costs with ALGRIP.

Name_____ Title_____

Address_____

City_____ Zone_____ State_____

Equipment & Supplies

(Continued from Page 8)

addition, the units are available in 10,000 and 20,000 lb. capacities and four standard 6 ft. wide deck lengths of 5 ft., 6 ft., 7½ ft. and 10 ft.

Adjust-A-Truck units of 40,000 lb. capacity are available in two sizes of 9 ft. by 12 ft. and 10 ft. by 12 ft. Operation is by a momentary-contact pushbutton station mounted at any convenient location. Standard hydraulic power unit motor is 5 h.p., 200/440 v., 3 ph., 60 cy.

Deck surfaces of the units are constructed of checkered plate carried on a framework of standard structural beams and channels, welded throughout. Sponsor states it is designed to resist impact and unbalanced loading up to two-thirds of capacity. Decks are provided with bridge plates and substantial hinges or trunnions. More information is available by asking for PEE No. 80 in your request.

Three Cabinets Available

Akro-Mils, Inc. announces production of three models of welded, all steel cabinets with baked-on, gray hammertone enamel finish which are made in three

sizes and provide 8, 16, or 32 steel drawers. Features of the cabinets are enclosed steel backs with key-holes for hanging, and rubber feet. They may be stacked on each other, used side by side or back to back. Model 128-32 is 30 in. high by 25 in. wide by 6 in. deep. Model 64-16 is 15 in. high by 25 in. wide by 6 in. deep, and Model 32-8 is 12½ in. wide by 15 in. high by 6 in. deep. The rustproof drawers are zinc bonded electrocoated and are equipped with safety catches. Drawer dimensions in all three models are 11½ in. wide by 57/8 in. deep by 17/16 in. high. In writing for additional information, please refer to PEE No. 78.

Thin Base Photo Copy Paper

A thin-base photographic copy paper is being made available by the Du Pont Co. Made of 100% rag stock, Photo-Writ W photographic semi-matte copy paper is 0.0035 in. thick with emulsion. The new paper (55 gram stock) is nearly 50% lighter than the surface B Standard stock. The new W paper can be used as a negative for reproduction of additional prints

(*Continued on Page 18*)

CAN YOU AFFORD TO OIL AWAY ONE WORKING DAY A MONTH?

You can't . . . but you *do* . . . unless you own Original Heidelbergs. Owners of other platen presses say they spend 15 to 20 minutes a day on oiling. *That's 13 to 18 minutes more than you'll ever spend oiling the Heidelberg!* Reason: Built-in "One-Shot" Lubrication oils all main bearings for the day with one stroke of a lever . . . leaves only a few points to oil periodically.

Another Heidelberg exclusive . . . more ball bearings than any other platen press in the world. Result: smoother operation, longer press life!

SEE AND TEST THE HEIDELBERG!
Our Demonstration Truck will be at your door at your command! No obligation . . . just write.

ORIGINAL HEIDELBERG

THE BEST THING NEXT TO A PRINTER

HEIDELBERG DISTRIBUTORS

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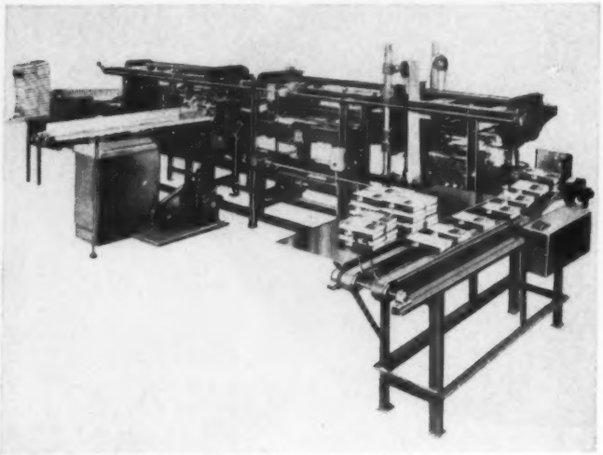
Houston 3, Texas

HEIDELBERG WESTERN SALES CO.
118 E. 12th St.
Los Angeles 15, Calif.

HEIDELBERG EASTERN SALES CO.
45-45 Thirty-Ninth St.
Long Island City 4, N.Y.

HEIDELBERG SALES & SERVICE:
Columbus 15, Ohio; Chicago 7, Ill.; Atlanta, Ga.; Kansas City 6, Mo.; Minneapolis 15, Minn.; Denver 2, Colo.; Salt Lake City, Utah; San Francisco 3, Calif.; Seattle, Wash.; Portland, Ore.

How to cut your book jacketing costs by as much as 50%, and get all around better jacketing



The Dexter-de Florez Book Jacketing Machine

Jackets and books are fed in automatically, the former from hopper which can be kept loaded to permit uninterrupted operation, the latter by a Cleveland continuous automatic feeder.

Jackets are applied with uniform accuracy, creased around covers and wrapped to any desired degree of tightness. Experience has proved the machine capable of sustained production of 3,500 to 4,000 books jacketed per hour using the normal crew of three.

Size of books handled ranges from 4¾ x 6 to 7¼ x 10″; bulk ranges from ⅜ to 2″. Because of the short time required to set up the machine for new runs, it is economical for short runs as well as long. A New York binder reports that he finds it profitable to use on runs of as few as 500 books.

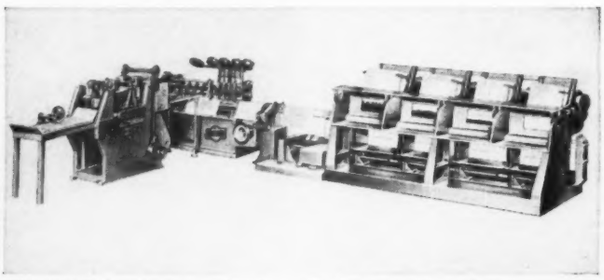
Where it has been the work of a single operator to jacket *and* inspect, this machine makes it possible for the operator to concentrate on the business of inspecting alone. The result is a profitable increase in the number of books jacketed and inspected in any given period, a proportionate decrease in costs and better performance on both operations.

The experience of users over extended periods has shown that this Dexter de Florez machine can cut jacketing costs by as much as 50%.

Demonstration may be arranged and our representative is ready to figure with you the savings this machine may effect in your bindery.
Write for circular.

Dexter Folder Company
General Sales Offices
330 West 42nd Street, New York 36, N. Y.
Boston, Philadelphia, Washington, Cleveland, Chicago, St. Louis
Agents in principal foreign countries.

This combination cuts gathering and stitching costs as much as 50%



The McCain Signature Feeders, Christensen Gang Stitcher and McCain Three-knife Trimmer

This combination of three machines, coupled to form an integral unit, feeds the signatures, saddle stitches and trims the booklets or magazines in a single, continuous operation, at speeds of up to 7,500 completed books per hour.

The feeders are built in units of two, three or four stations, line-assembled to handle any desired number of signatures, which may range in size from 5¼ x 7″ to 11½ x 16″.

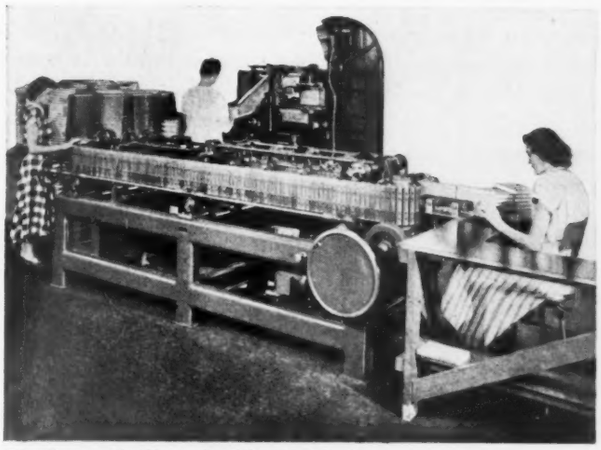
An extremely accurate caliper, adjustable to operate at any point in a 7″ range, detects and rejects gathered booklets with the wrong number of pages. If book is too thick or too thin, stitcher heads will not operate and the imperfect book is diverted to reject table without stopping the machine.

This Christensen-McCain three-machine combination breaks the bindery bottleneck, steps up production and brings down gathering, stitching and trimming costs as much as 50%. No time is wasted between operations and floor space is saved since there are no skids of work awaiting the next operation.

The three-knife trimmer is automatic and fast, taking the books singly and trimming three sides with unexcelled accuracy. It handles books up to ¼″ in thickness. A heavy duty special is available to trim books of ½″ thickness.

Our representative is ready to give you figures showing the economies you may expect from this combination. Circular giving more detailed information will be sent on request.

Building in hard cased books and delivering the finished product at up to two thousand an hour



The Dexter-de Florez Building-in Machine.

Books fresh from casing-in machine (in background) are fed into compression belts. Parallel nippers, heated under thermostatic control and adjustable for pressure, iron hinges as books move along.

Using the conventional methods, eight to ten hours is a fair estimate of the time it takes to build in each batch of hard-cased books.

It requires that long for paste to set and hinges to be formed. To this you must add the time and labor costs of stacking and unstacking, and the investment in boards and their maintenance.

The Dexter-de Florez Building-in Machine delivers the finished books in a steady stream about ten seconds after they are fed into its compression belts.

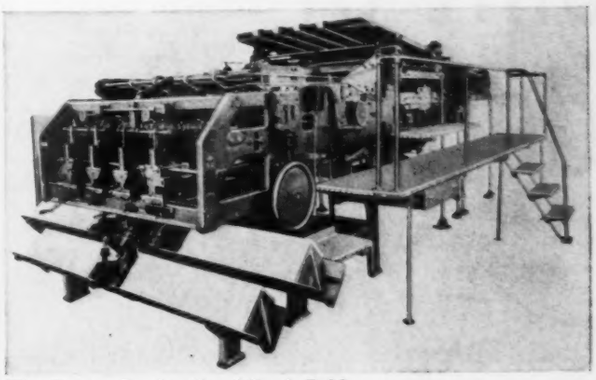
The machine operates quietly and has a potential of about 2,000 books per hour — to pace the standard casing-in machine. It delivers uniformly creased hinges with paste set into the joints.

Setting up is extremely simple. Size changeover calls for only two adjustments which can be made in about two minutes.

Books may be of any thickness, including case, from 5/16" to 2-13/16", from 4" to 8" in width and of any desired length.

Our representative is ready to discuss the application of this machine to your needs and to arrange a demonstration. Write for literature.

Folds as many signatures hourly as two model "N" Quads . . . . with 33% saving in floor space



The Dexter Duplex Quad Book Folder

Basically a Model "N" Quad folder, this machine has an additional cross feeder and delivers *two* sheets on separate conveyors simultaneously to position at first fold, one above the other and individually registered both side and front.

Signature sizes: 4⅛ x 6¼" to 7¼ x 10½".
Flat size sheets: 25 x 33" to 42 x 58".

The sheets are folded and delivered into packer boxes as on the "N" Quad, but the *Duplex* Quad delivers four 32 page signatures with *closed* heads, whereas the Model "N" produces two 32's composed of inserted 16's.

The Duplex Quad may be furnished as a complete new unit—or a Duplex attachment can be supplied for any Model "N" Quad already installed.

The Duplex Quad folds approximately as many signatures per hour as two Model "N" Quads, with a saving of about one third of the floor space required by two Model "N" Quads. Also the 32 page signatures with closed heads delivered by the Duplex Quad facilitate subsequent bundling, gathering, sewing and stitching operations.

Further information and data showing the economical application of this folder to your production will be furnished on request.

Dexter Folder Company
General Sales Offices
330 West 42nd Street, New York 36, N. Y.
Boston, Philadelphia, Washington, Cleveland, Chicago, St. Louis
Agents in principal foreign countries

has your business reached the

point of decision?

● Any successful printing business will come to it.

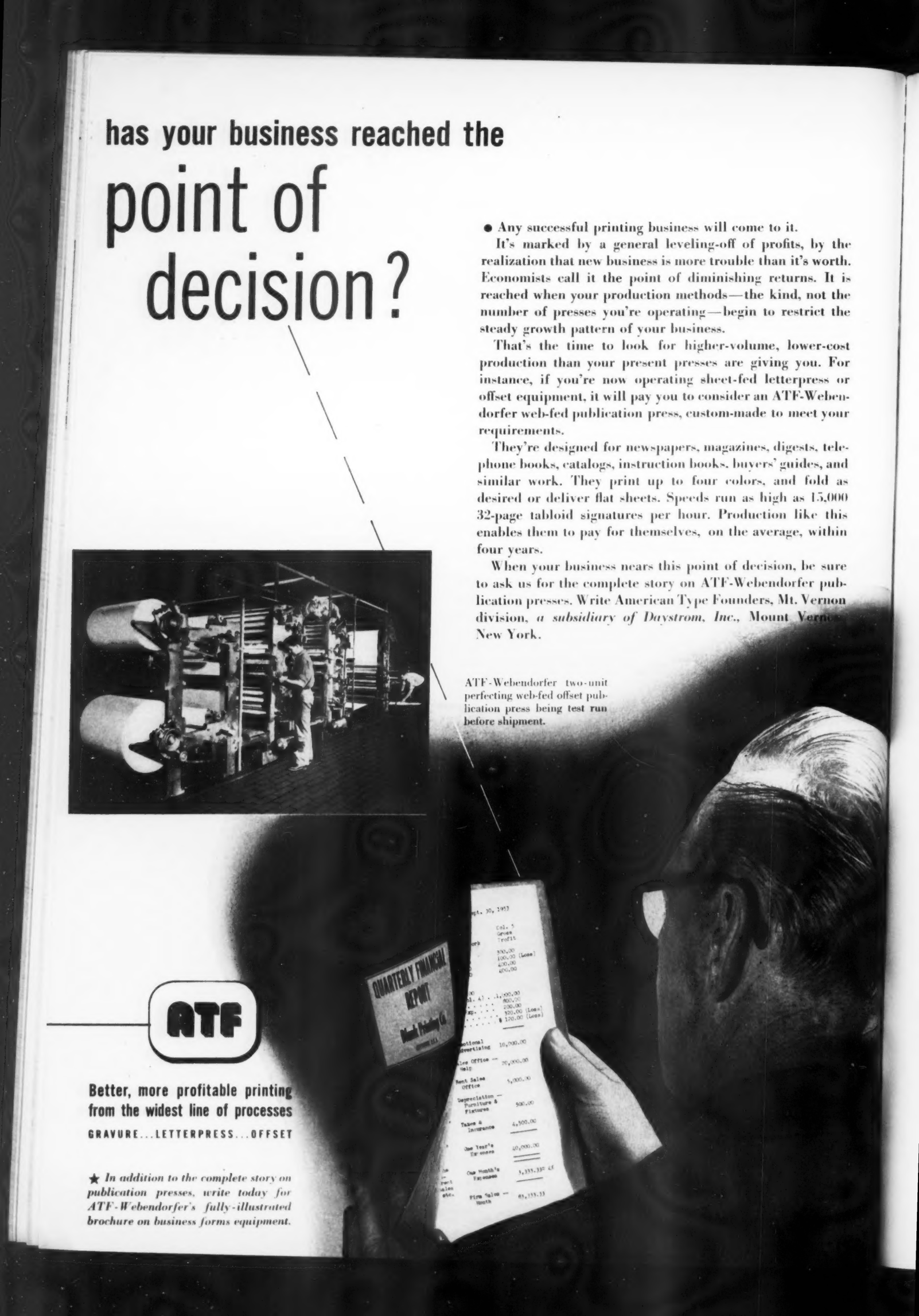
It's marked by a general leveling-off of profits, by the realization that new business is more trouble than it's worth. Economists call it the point of diminishing returns. It is reached when your production methods—the kind, not the number of presses you're operating—begin to restrict the steady growth pattern of your business.

That's the time to look for higher-volume, lower-cost production than your present presses are giving you. For instance, if you're now operating sheet-fed letterpress or offset equipment, it will pay you to consider an ATF-Webendorfer web-fed publication press, custom-made to meet your requirements.

They're designed for newspapers, magazines, digests, telephone books, catalogs, instruction books, buyers' guides, and similar work. They print up to four colors, and fold as desired or deliver flat sheets. Speeds run as high as 15,000 32-page tabloid signatures per hour. Production like this enables them to pay for themselves, on the average, within four years.

When your business nears this point of decision, be sure to ask us for the complete story on ATF-Webendorfer publication presses. Write American Type Founders, Mt. Vernon division, *a subsidiary of Daystrom, Inc.*, Mount Vernon, New York.

ATF-Webendorfer two-unit perfecting web-fed offset publication press being test run before shipment.



ATF

Better, more profitable printing from the widest line of processes

GRAVURE...LETTERPRESS...OFFSET

★ *In addition to the complete story on publication presses, write today for ATF-Webendorfer's fully-illustrated brochure on business forms equipment.*

Better Ink
Means HERRICK INK
and
Greater Legibility

All-round legibility is a subject that stirs wide interest at every Mechanical Conference. And when ink is mentioned, you need only turn to the Herrick Representative. He can tell you how a Herrick ink can be custom-made to suit just *your* pressroom conditions...an ink that will *always* give your paper a clear, clean-cut, attractive appearance.
So look up the Herrick ink man before you go away from the conference... you'll be richer for it!

More and more newspapers are demanding Herrick News Inks for

- **H** igh color strength
- **E** xceptional coverage
- **R** ight density
- **R** eliable service
- **I** ncreased sales appeal
- **C** olor uniformity
- **K** nowledge and experience

HERRICK Inks

William C. Herrick Ink Co., Inc.

Main plant and office **East Rutherford, N. J.**
Branch plant **Jacksonville, Fla.**

QUALITY NEWS, LETTERPRESS, AND OFFSET INKS

Equipment & Supplies

(Continued from Page 12)

by the contact method. Further information will be cheerfully furnished if you will mention PEE No. 79 in your request.

Six Steel Cabinets

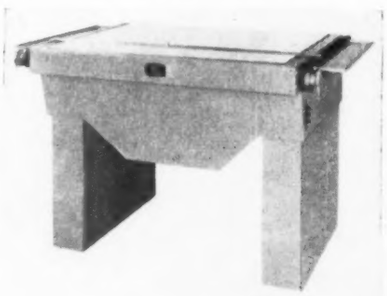
In a 6-page brochure published by Toronto Metal Works is included illustrated information concerning six steel storage cabinets for printers. Featured in the brochure are Speedy rolling galley and other cabinets. Also illustrated are Guardian art work cabinets, and a two-compartment George offset plate filing cabinet. For further information, please request PEE No. 88.

Ludlow's Record Gothic Condensed

Specimen lines and typographic examples of the Ludlow type face Record Gothic Condensed are shown in a four page bulletin issued by Ludlow Typograph Co. Size range of the face extends from 6 pt. to 48 pt. Sponsor states it is appropriate for publication display and feature heads, college and school year books, and display requirements of telephone directories and similar publications. According to Ludlow, a large use of the type face is in the making of rubber stamps. The bulletin is printed in two colors. It may be obtained by mentioning PEE No. 85 in your request.

Layout-Stripping-Lineup Table

Bar Plate Mfg. Co. has announced a table designed for combination layout-stripping-lineup operations by the offset platemaker and printer. Several sizes in



The Pacemaker Layout-Stripping-Lineup Table may be used for performing several operations in the printing plant. Several sizes are available from Bar Plate Mfg. Co.

both floor and table models are available with illuminated areas of 30 in. by 40 in., 40 in. by 52 in., 48 in. by 70 in., and 62 in. by 84 in. Working surface is of ¼ in. plate glass ground for maximum diffusion of light.

A three-way fluorescent lighting system is said to provide even, non-glare, shadow and hot-spot free, soft, medium or bright illumination, operable according to the combination desired. The interior of the light box is finished in white enamel to provide a high reflective surface.

The horizontal stainless steel straight edge may be moved manually or by means of a vernier control. The latter is operable from either side of the table and functions by self-aligning ball bearing pillow blocks. Stainless steel scales, located at each side of the table, are graduated in 1/32 in. Additional information may be obtained by asking for PEE No. 84 in your request.

Please be sure to mention PEE No. when asking information about items mentioned here.

Moisture Control Brochure

Compressed Air Moisture Control is the title of a 4-page brochure in which are discussed types and quantities of impurities and methods for their removal. The Vi-Speed method, units, and dessicants are described. Further information may be obtained by mentioning PEE No. 87 in your request.

Plastic and Rubber Platemaking Bulletin

Equipment and materials used in the production of plastic and rubber plates are listed in the contents of a 12 page bulletin prepared by Williamson & Co., Inc. Details and specifications on the various molding presses supplied by William

(Continued on Page 22)

• *This building dominates Salt Lake City's skyline. In stereotype work, BURGESS dominates.*

BURGESS MATS are made by specialists in paper, pulp and cellulose chemistry. The BURGESS plant is actually a large, modern laboratory producing mats by the thousands with absolute accuracy and precision. Each step in the making of BURGESS MATS is controlled—each operation periodically tested. When you use BURGESS MATS you are using the finest mats made. Leading stereotypers use BURGESS MATS . . . and *only* BURGESS MATS!

(*Mormon Temple*)

BURGESS CELLULOSE COMPANY
Manufacturers and Distributors of Burgess Chrome and Tone-Tex Mats
Freeport, Illinois

A Laboratory Product
BURGESS Chrome MATS

Precision

presswork

demands

precision

rollers

The indispensable ingredient of fine presswork . . . is the *roller!*

So it is important that the roller be the very best. For more than a century, SAM'L BINGHAM'S SON MFG. CO., America's first maker of printing rollers, has maintained leadership in this field. Quality standards, set by long dealings with many of America's most reputable and exacting printers, control operations in each of the 20 strategically located factories.

To solve your roller problem, send your rollers to the Bingham plant most convenient to you.

SAM'L BINGHAM'S SON MFG. CO.

MANUFACTURERS OF

PRINTERS' ROLLERS

the Right Roller right away

CHICAGO	DALLAS	INDIANAPOLIS	MINNEAPOLIS	ST. LOUIS
ATLANTA	DES MOINES	KALAMAZOO	NASHVILLE	ST. PAUL
CINCINNATI	DETROIT	KANSAS CITY	OKLAHOMA CITY	SPRINGFIELD, O.
CLEVELAND	HOUSTON	MILWAUKEE	PITTSBURGH	TAMPA, FLA.

COMPOSITION . . . RUBBER . . . VULCANIZED OIL Rollers

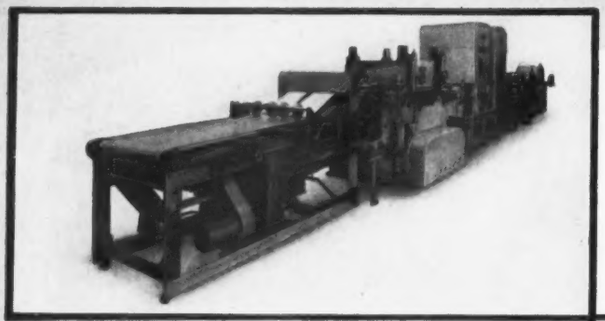
Hallmark of the finest printing and converting equipment...

Champlain

Rotogravure

High-speed precision-register printing on practically *any* stock in *any* practical multiple of colors. Meet the ever-increasing demand for more and better wrappers, labels, and cartons for packaged goods with Champlain *inline* rotogravure. "Speedry" ink fountain insures true reproduction of color and instantaneous drying. Print from roll stock 8" to 44" wide.

To complete a* CHAMPLAIN *rotogravure press—a* CHAMPLAIN *inline precision delivery unit:

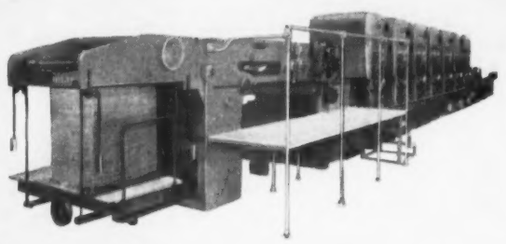


Cutting and Creasing Press

In one pass — only *once* through the press — it cuts, creases, and automatically yet thoroughly strips 7,500 to 10,500 cartons per hour from a continuous web. Platen press quality at *better* than cylinder press speeds.

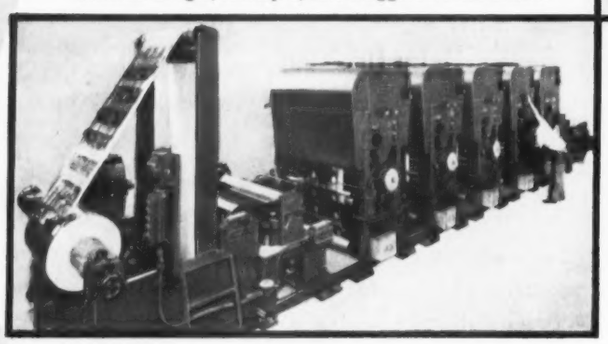
Sheet Delivery

Delivers from 8,500 to 12,500 square cut sheets per hour with 1/64" accuracy. *Faster than any other standard sheeter.* Positive sheet handling eliminates damage. No waste trim.



Rewind Press

Hydraulically-actuated constant-tension roll unit rewinds from 400 to 800 ft. per min. Positively synchronized to press for balanced speed, tension, and control. Single, multiple, and staggered-roll models.



PLUS ***— a complete line of other equipment for all printing and converting needs.***

LETTERPRESS PRESSES, FLEXOGRAPHIC PRESSES, SPECIALTY PRESSES—for Tag, Chart Paper, End and Bakery Seals, Die Cut Labels.

CUTTING AND CREASING EQUIPMENT—Roll Fed Swing-Type Reciprocal and Stationary Die Cutting Presses — Vertical Extruding and Eccentric Punches and Perforators—Rotary Blankers.

SPECIALTY CONVERTING EQUIPMENT FOR INLINE USE—Rotary Embossers — Perforators and Score Units — Slitting Equipment — Hot Melt Thermoplastic Applicators — Special Delivery Equipment.

AUXILIARY EQUIPMENT — Automatic Electronic Register Controls (for multicolor and fabrication register on roll-fed equipment) — Automatic Web Splicers.

. . . and for special engineered equipment:

Champlain's ability to design and build special units is based on years of experience in developing inline printing, fabricating, and delivery equipment.

Champlain

Write today for catalog of Champlain equipment. Champlain Company, Inc.
88 Llewellyn Avenue, Bloomfield, N. J. Chicago Office: 520 N. Michigan Avenue, Chicago 11, Ill.

3309

VISIT OUR BOOTH NO. 206 WHILE AT THE NATIONAL PACKAGING EXPOSITION

one and only one brand of
TELETYPESETTER TAPE
MAILING PAPER
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can be supplied to you from the nearest of
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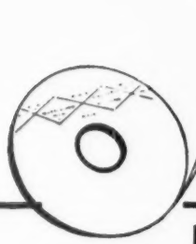
The Teletypesetter Tape
used on more Teletypesetters
than any other Brand.

This Trade Mark

and Service
means Perfection in Performance as well as in Name



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The World's Leading Brand of Communication Papers

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San Francisco • New England

Pacific Coast Warehouses: Los Angeles • San Francisco *Plants:* Philadelphia • Indianapolis

Equipment & Supplies

(Continued from Page 18)

son along with data on accessory equipment and supplies are included in the two-color bulletin. The piece of literature is well-illustrated. Copies may be obtained by requesting PEE No. 73 in your letter.

Type Face Series Done

Mergenthaler Linotype Co. announces the completion of 7 and 9-pt. Linotype Primer, now available in a full series. Jackson Burke, Linotype director of typographic development, expressed his belief

This is a specimen of Primer with *Italic* and SMALL CAPS. This basic type face was designed by noted American artist Rudolph Ruzicka exclusively for Linotype.

10△612. 10 point Primer®

that it reads easily at first sight; has no frills to slow down recognition. He described its reproducing qualities as extremely clean by all printing methods. Linotype Primer was designed by Rudolph Ruzicka. Please request PEE No. 66 when writing for further information.

Kodak Transparency Illuminator

The Kodak Transparency Illuminator 10 x 10 may be used for viewing color transparencies in sizes up to and including 8 in. by 10 in., reports the Eastman Kodak Co. Sponsor states both color and brightness characteristics in the illuminator have been held to firm standards to achieve proper color balance for viewing color

transparencies. The illuminator is made of Styron plastic sheet with white translucent Plexiglas and a blue glass filter for proper color correction. It is designed to accommodate a standard 60 w. tungsten lamp and may be used on 110-220 v., a.c. or d.c. lines. Please mention PEE No. 86 when requesting additional information.

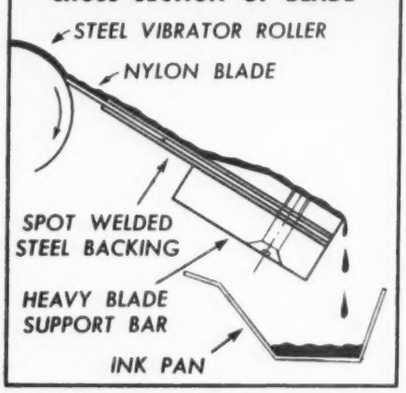
Cut Washup Down Time with the

BALDWIN PRESS WASHER

PHOTO AT RIGHT SHOWING SECTION OF PRESS WITH BALDWIN PRESS WASHER

A—MOUNT
B—ADJUSTING SCREW
C—BLADE
D—REMOVABLE INK PAN

CROSS SECTION OF BLADE



The long-wearing nylon blade is accurately machined to fit roller, and is rigidly supported with welded steel backing. Blade will last at least a year with reasonable care, and is guaranteed for six months. The entire assembly is easily replaced when necessary.

Baldwin Press Washers clean ink rollers easily, quickly, and automatically on almost all models of rotary presses, both offset and letterpress. A good solvent on the rollers, a few turns of two thumbscrews, and the Baldwin does the rest. Ink is collected in an easily cleaned ink pan. Ink rollers stay in the press, ready for the next job...even color changes are quick and easy!

Easy to install, these maintenance-free Baldwin units pay for themselves over and over in washup time saved on your presses...and insure press cleanliness and efficiency, by eliminating messy, time-consuming hand cleaning.

YOURS—FOR THE ASKING—an illustrated, detailed brochure on the Baldwin Press Washer. Write today!

Manufacturers of:

BALDWIN INK FOUNTAIN AGITATORS · BALDWIN VIBRATING ROLLERS · BALDWIN PRESS WASHERS · BALDWIN WATER STOPS · BALDWIN WATER FOUNTAIN LEVELS

William Gegenheimer Company

80 Roebling Street · Brooklyn 11, New York

Water Temperature Regulator — The Augustine Water Temperature Regulator provides photoengravers, offset platemakers and color photographers with a flow of water at the exact temperature required for processing negatives and plates, announces the Augustine Company. Temperature range is limited only by hot and cold supplies to which the regulator is connected. Temperature is read on the dial seen in the illustration. Sponsor states the unit is equipped with special rotary check valves which are self-cleaning and prevent hot and cold water from backing up in the wrong lines. A two-color bulletin, in which the regulator is described, is available. For additional information, please mention PEE No. 76 in your request.

Flying Splice Adhesive

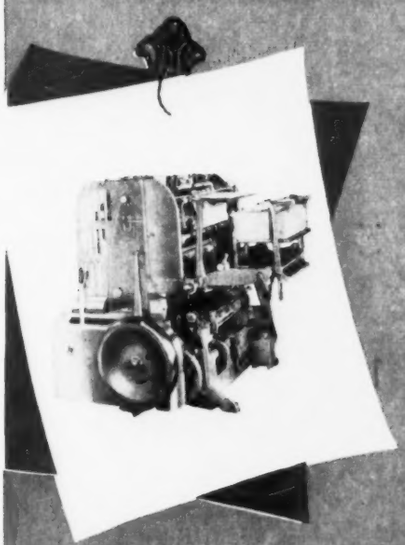
A flying splice adhesive of the pressure-sensitive type, Bondmaster 59, which is claimed to offer high tack, bond strength and heat resistance, has been announced by Rubber and Asbestos Corp. In application, the adhesive is brushed on the leading edge of the roll of film or paper

(Continued on Page 26)

Jones Hasn't...

Smith has...

the Miehle Vertical



Sheet Size 14x20
Speeds up to 5000

Look at Printer Smith's "hook"...it's full of orders for small jobs. Letterheads, catalogs, bill heads, folders, announcements, flyers, are all included in the day's work.

Our friend Smith had no trouble getting this kind of work from the grocer, the dry cleaner, the factory down the street. He hasn't had any trouble keeping it, either, because he runs it all on the Miehle V-50 Vertical. He discovered years ago that the Vertical can't be beaten for simplicity of operation, quick changeover and makeready, high running speeds. His Vertical will always be the busiest, most profitable press in his plant.

We know that after Printer Jones reads this ad he's going to investigate the merits of running a Miehle Vertical in his shop. When he finds out what the Vertical will do for him, he'll be able to brush those cobwebs away from the "hook" and load it up with business to equal that of Friend Smith.

Miehle Printing Press & Manufacturing Company | **Chicago 8, Illinois**

You *save* when you use Ansco Reprolith Ortho Type B Film!

Profits and customer-satisfaction go up when your shop is rolling along with this fine Ansco film! That's because it offers a whole series of advantages which mean savings in time, money and frayed nerves. And it does all this in addition to insuring highest-quality results. Take a look at just a few of the advantages Reprolith Ortho Type B offers you:

HIGHER SPEED: Permits important time savings in making exposures, both in the camera and in contact printing.

FULL ORTHOCHROMATIC SENSITIVITY: Lets you use filters to improve rendition of copy—less time consumed in handwork on negatives.

PLUS . . . High resolving power . . . fine dot etching qualities . . . clarity in white areas . . . steep gradation . . . wide developing latitude . . . excellent uniformity.

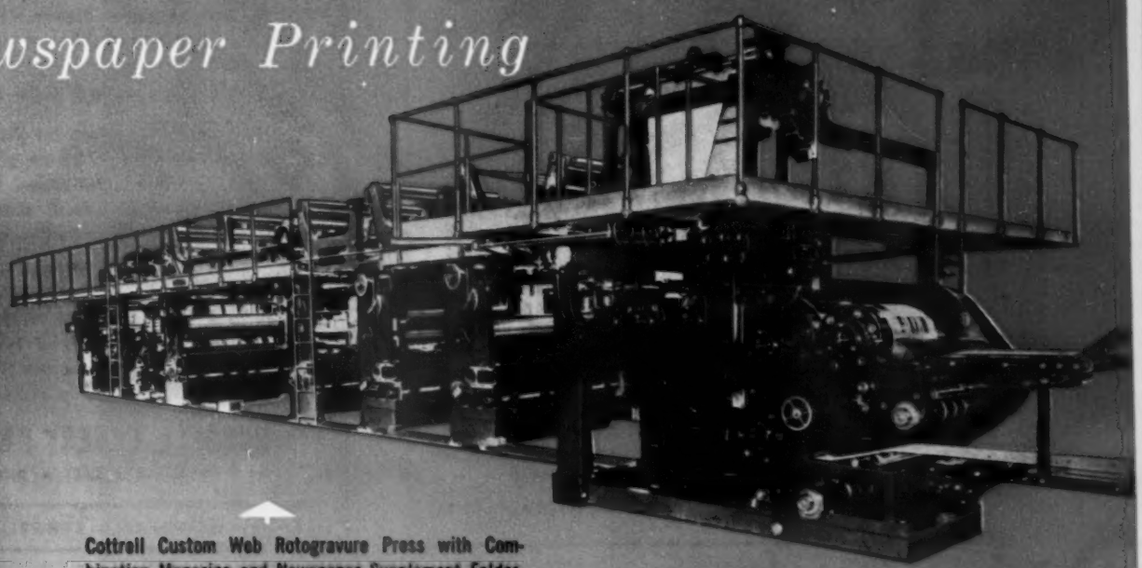
Order a supply of Ansco Reprolith Ortho Type B Film! You'll find that everyone in your shop will benefit.

ANSCO, Binghamton, New York. A Division of General Aniline & Film Corporation. "*From Research to Reality.*"

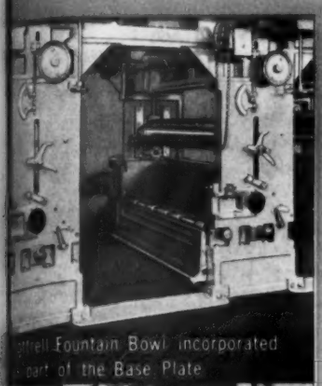
IN THE GRAPHIC FIELD IT'S ANSCO

COTTRELL ROTO-GRAVURE PRESSES

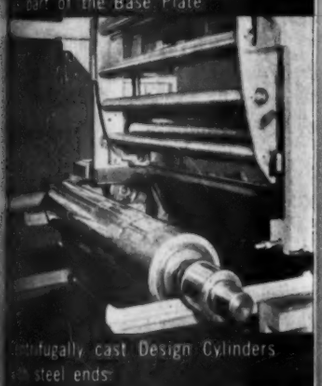
for Multi-Color Magazine and Newspaper Printing



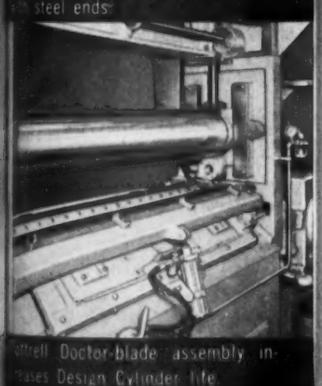
Cottrell Custom Web Rotogravure Press with Combination Magazine and Newspaper Supplement Folder.



ottrell Fountain Bowl incorporated part of the Base Plate



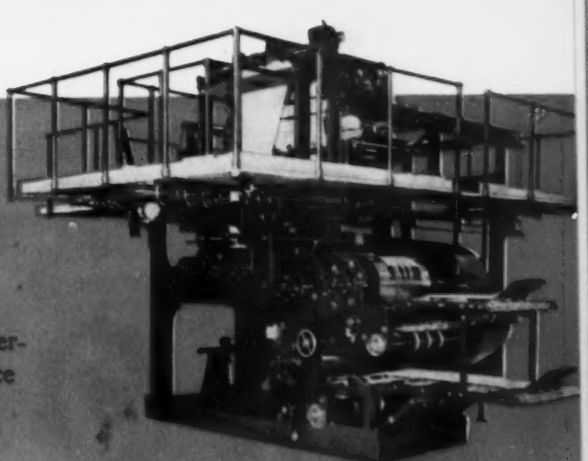
ntrifugally cast Design Cylinders steel ends



ottrell Doctor-blade assembly increases Design Cylinder life

Cottrell Multi-Color Custom Magazine Rotogravure Press with Magazine Folder.

Cottrell Combination Magazine and Newspaper Supplement Folder.



Rotogravure Presses . . . Designed and built by the World's Color Press Pioneers; C. B. Cottrell & Sons Company. Nearly 100 years of multi-color press manufacture in the high-speed rotary letterpress field . . .Over twenty years experience in Rotogravure—Your assurance of finer presses—finer printing—year after year.

C. B. COTTRELL & SONS COMPANY

Westerly, Rhode Island

Claybourn Division, Milwaukee, Wis.

Sales Offices: New York, Chicago, London

New England Newspaper Supply Co.

Consolidated with

New England Fibre Blanket Co.

"The Oldest Name in Press Blankets"

★

NEW YORK OFFICE:
230 West 41st Street
New York City
Tony Cronin

SOUTHWEST OFFICE:
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Eddie P. Gaughan

CHICAGO OFFICE:
1950 Daily News Bldg.
Chicago, Illinois
Scotty Campbell

WEST COAST OFFICE:
318 DeYoung Bldg.
San Francisco, California
Ed Sparks

NEW ENGLAND NEWSPAPER SUPPLY CO.

Gardener G. DeMallie, General Manager

164 FREMONT STREET WORCESTER, MASSACHUSETTS

***Co-operation,* the KEY**

that opens all doors. You-all sure co-operated with us . . . over 11,000 Gold-mines since V-E-Day. Fantastic? Yes, but just as true as the fantastic profits those GOLD-MINES are daily creating for their astute owners.

This fantastic volume enabled us to maintain fantastically low (almost pre-war) prices, in an era when other machinery more than doubled or more than tripled, prewar price. Never aimed at over 2% net profit (took even less)

IN '54 . . . we'll do even MORE

Your Gold-Mine is yours for the taking . . . and only 5% initial (less than $100 on all models smaller than 22x28) . . . balance, the tiniest share monthly of the increased velvet profits it creates . . . the next 30 months. No finance charge . . . just simple interest.

You can't make bricks without straw . . . users all say they couldn't make a profit without the finest, fastest folder ever designed. The next move yours . . . pick up the telephone . . . call (it MUST be Collect) Lombard 3-8165 . . . Do give me the pleasure of talking it over with you—thanks a million.

RUSSELL ERNEST BAUM (Himself)

615 CHESTNUT STREET • PHILADELPHIA 6, PA.

14 x 20...17½ x 22½...22 x 28...25 x 38...31 x 46-60

Equipment & Supplies

(Continued from Page 22)

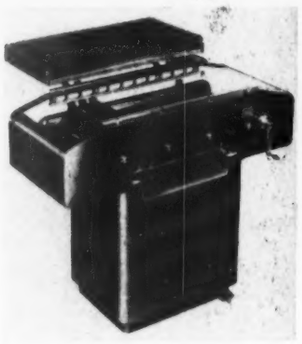
to be joined. An automatic splice is formed as the trailing edge of the roll being printed or otherwise processed comes into contact with that area. Using a Kidder Press applicator, the adhesive may be applied either to the trailing or the leading edge of the paper roll. Please mention PEE No. 68 when requesting further information.

Mercury Switch Catalog

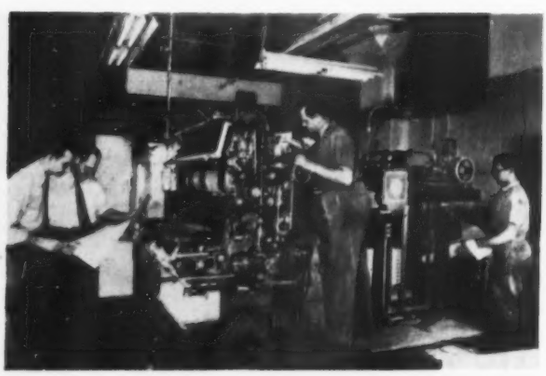
A 12-page, two-color catalog, No. 90, on Honeywell Mercury Switches, has been published by Micro Switch, Div. of Minneapolis-Honeywell Regulator Co. This catalog covers standard designs of Honeywell Mercury Switches for use in a-c or d-c industrial and commercial switching application. In all, 29 catalog listings are included. Also given is information on each switch including dimensions, description, electrical rating, differential angle, lead wires, and the type of application for which each switch is suited. For additional information, please specify PEE No. 70 in your request.

Electric Galley Proof Press

An electric galley proof press available in 10 in. and 14 in. sizes has been announced by Printing Industries Equipment, Inc. The press is designed for use in newspaper and large typesetting plants for both editorial and advertising proofing, and in commercial plants for proofing of straight matter composition and



made-up pages. Known as the Sadolins Proof Master, it is claimed by the sponsor to deliver proofs at speeds up to 25 i.p.m. and will accommodate full length galleys. Please refer to PEE No. 75 when requesting further information.



Offset Press Installed — Vela Company, New York, N. Y., recently installed an ATF-Mann one-color offset press, which accommodates a sheet 23 in. by 36 in. Pictured with the press (left to right) are: Harry Schlack, Art Director; Henry P. Gallo, Prod. Mgr.; Louis Van Gellinghen, and Ralph Morotta.

Skid-proof Floor

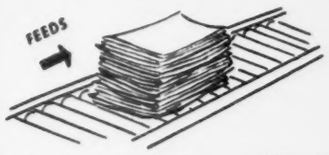
NeoFloor is announced as a skid-proof coating for concrete, wood and metal floors. Pennsylvania Salt Mfg. Co. states it is for use in plants where oils, greases and chemicals create safety hazards and maintenance problems. NeoFloor is a grit-like material anchored in a matrix of resilient Neoprene and bonded to the floor with an adhesive primer. It is said

(Continued on Page 28)

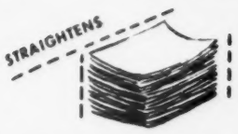
Wiretyer

fully automatic

SIX STEPS IN WIRETYER'S OPERATING CYCLE TAKE LESS THAN 2 SECONDS



Bundle is conveyed into machine by wire-mesh belt and located for either single- or simultaneous double-tie.

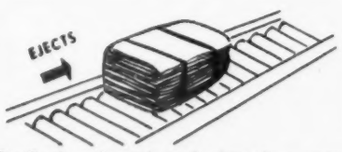


Bundle is aligned in a neat stack by air-driven straightener; given precise alignment.

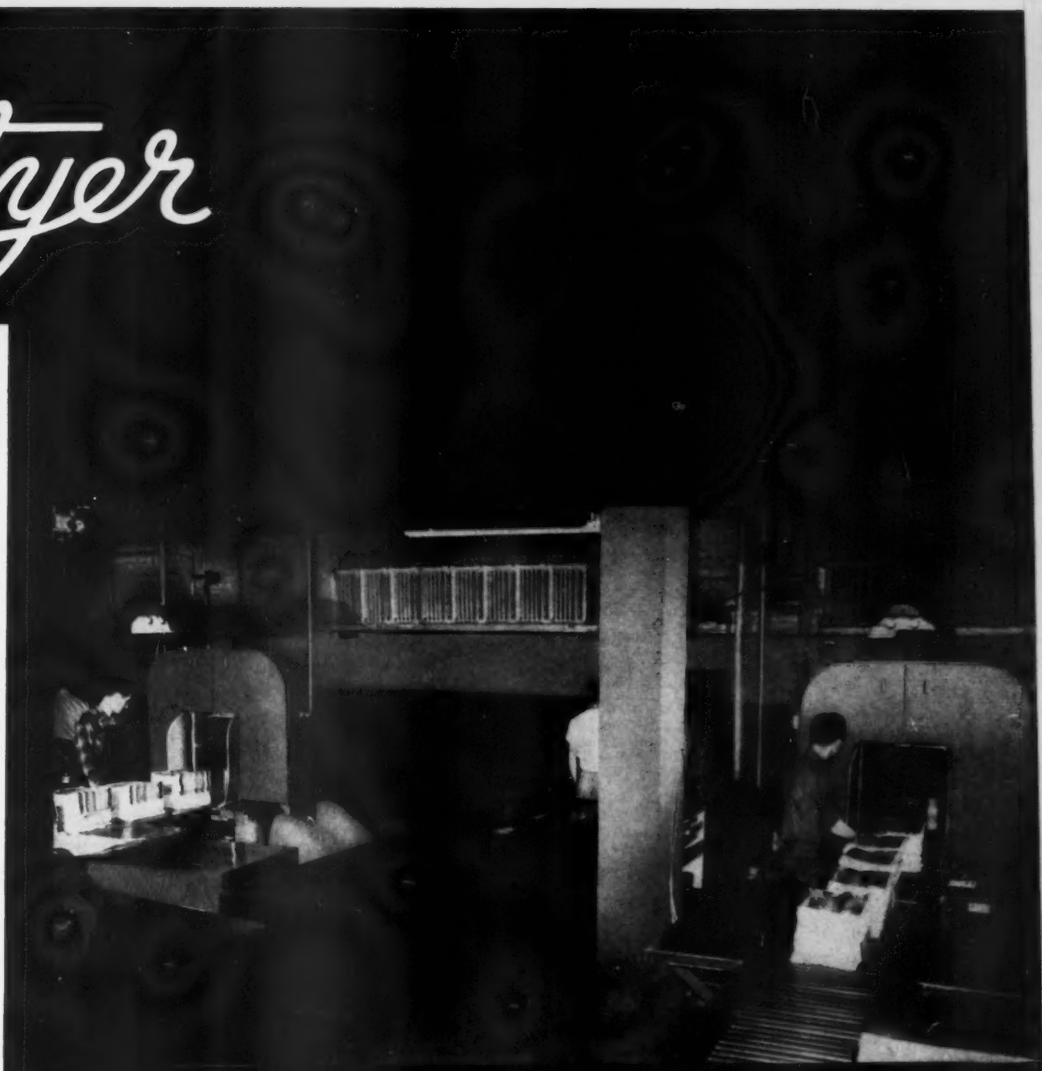
Overhead, air-powered ram compresses stack 25% of initial height; holds it while it is being tied.

Single or double wires are wrapped around bundle under controlled tension.

Wires are twisted in a secure tie; ends cut and buried. Safe for handlers; no damage to conveyors or other bundles.



Bundle is released and ejected to conveyors. Capacity of equipment 1500 bundles per hour.



Action photo of Wiretyer units in mailroom of Akron Beacon-Journal streamlining newspaper bundling by fully automatic operation.

YES, Wiretyer equipment is doing just that for newspapers and magazines whose mailrooms are equipped with this remarkable new development.

Increased production is accomplished because Wiretyer is fully automatic in operation, turning out single-tied or simultaneously double-tied bundles at the rate of 1500 an hour—hour after hour—with unfaltering performance.

The lower cost comes from engineering design that enables the use of lighter tying wire. This results in reported savings up to 50% in wire tonnage. And the Wiretyer owner buys inexpensive #17 gauge basic wire in the open market.

The exceptional accomplishment of increased production at more economical cost derives from five years of continuous engineering development and field use of Wiretyer equipment. Write to Wiretyer for Bulletin 101 for more detailed information on how "Wiretyer Equipment Ties More Bundles Faster —At Far Less Cost."

WIRETYER CORPORATION

230 WARBURTON AVENUE, HAWTHORNE, NEW JERSEY

4-2-53

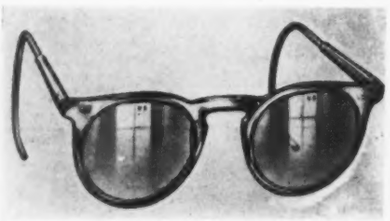
Equipment & Supplies

(Continued from Page 26)

to be resistant at temperatures up to 220 deg. F. May be cleaned with chemical detergents and cleaners. Other claims are that NeoFloor will stand up under heavy traffic, heat-aging and other rugged conditions. Further information will be furnished if you will mention PEE No. 89 in your request.

Saf-I-Spectacle

A lightweight, all plastic Saf-I-Spectacle, states United States Safety Service Co., includes a two-for-one design of an acetate frame which permits instant change



of the spectacle from regular to side shield model. The nose bridge is available in four widths. For further information, please mention PEE No. 67 in your request.

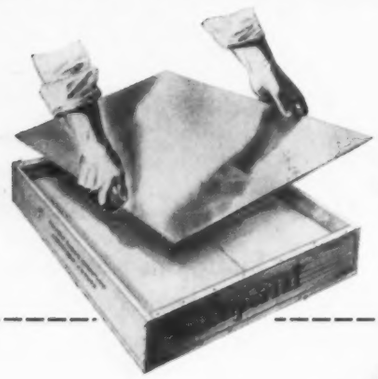
Buster Strapbreaker — The Lidseen Co. announces the Buster Strapbreaker, a tool for breaking steel banding, primarily as used on shipping containers. Sponsor says the tool is constructed of heat treated forged steel, weighs about 2¾ lbs. and is furnished with a plastic grip. The overall length is 19 in. and it reportedly will cut straps to 2 in. wide. In use, the tapered point is inserted under the strap to be cut and pushed to the base of the cutting slot to push or pull to cut the strap. Further information may be obtained by mentioning PEE No. 83 in your request.

12½ Pica Galley

A narrower galley, created for reduced widths in newspapers, is available, according to R. L. Perry, director of Hamilton

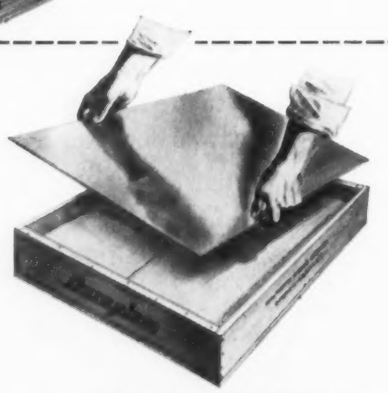
Printing Equipment sales. Perry states that it is 12½ picas wide with one open end, takes less space on the dump and makeup tables and is safer for storing the narrower composition. For further details, please refer to PEE No. 69 in your request.

Imperial
engraving
zincs
consistently good



IMPERIAL REGULAR
(Blue Redibak)

Meets the requirements for all usual applications.



IMPERIAL DURAPLATE
(Orange Redibak)

Alloyed for extra tough duty. Unusually resistant to buckling.

IMPERIAL TYPE METAL COMPANY

SERVING THE GRAPHIC ARTS Exclusively

CHICAGO 50 • NEW YORK 7 • PHILADELPHIA 34

IN CANADA: LATIMER, LIMITED, TORONTO 2-B

P.S.—Imperial Regular Zinc and Imperial Duraplate are both always available. No premium price for Duraplate. Order either or both to meet your requirements.

BOOKS

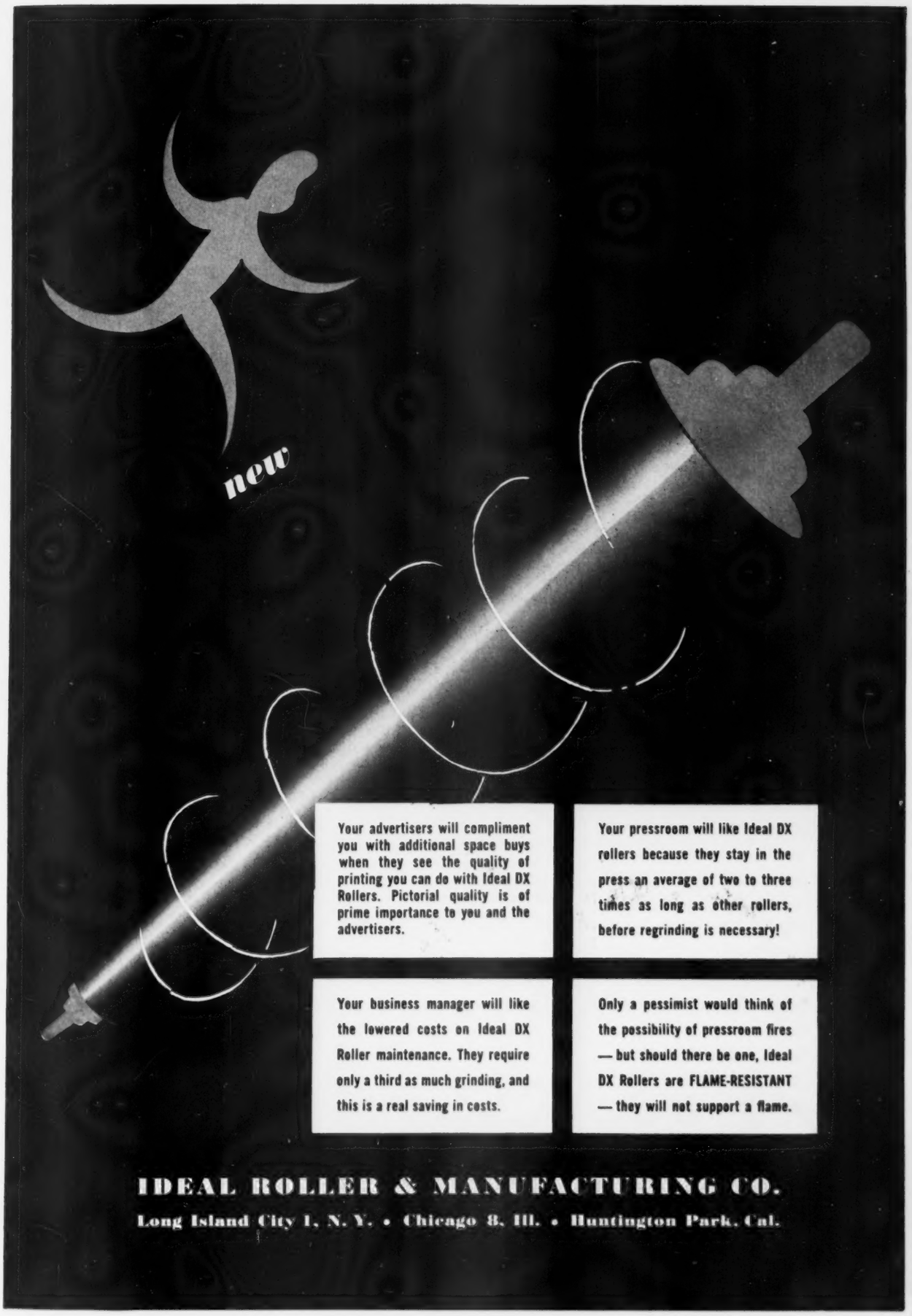
Miller Press Instruction Manual

THE Miller Printing Machinery Co. has issued an 88 page instruction manual on the Miller 27 in. by 41 in. SY Single-Color Letterpress. Operation and maintenance of the press are covered in detail. The text is illustrated with 90 halftones and line drawings of the various parts of the press.

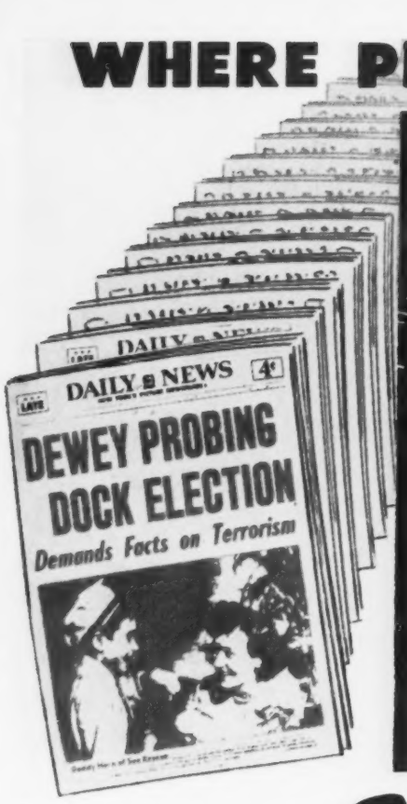
In addition to an explanation of the operation and adjustment of the press, a recommended maintenance schedule and a 16 page lubrication chart are included.

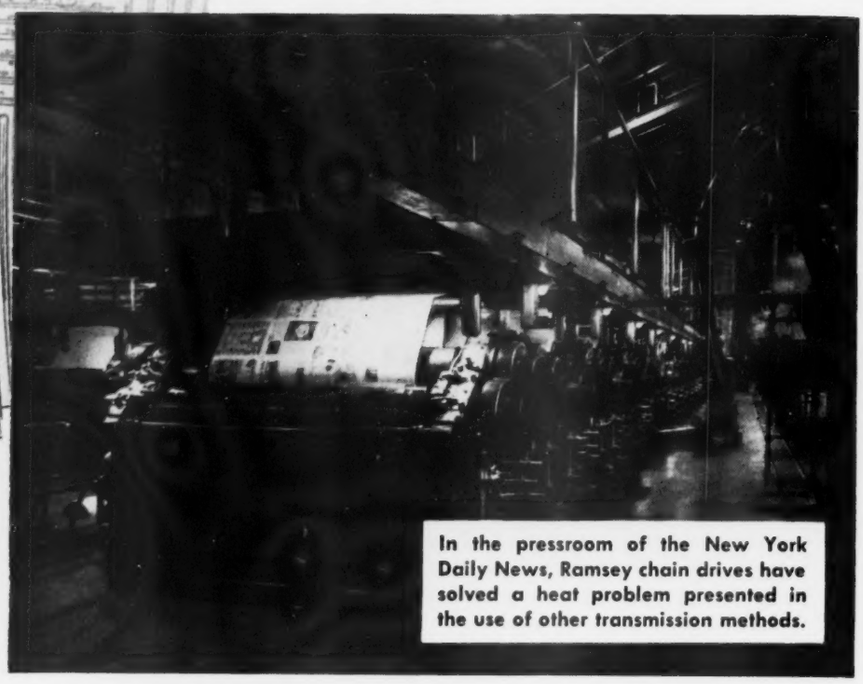
There are two sections devoted to trouble shooting and to printer's ingenuity. In the four page trouble shooting section are listed 25 of the most common troubles encountered in the operation of a press and the usual causes for such trouble. The seven page section on printer's ingenuity deals with some of the expedi-

(Continued on Page 37)


new
Your advertisers will compliment you with additional space buys when they see the quality of printing you can do with Ideal DX Rollers. Pictorial quality is of prime importance to you and the advertisers.
Your pressroom will like Ideal DX rollers because they stay in the press an average of two to three times as long as other rollers, before regrinding is necessary!
Your business manager will like the lowered costs on Ideal DX Roller maintenance. They require only a third as much grinding, and this is a real saving in costs.
Only a pessimist would think of the possibility of pressroom fires — but should there be one, Ideal DX Rollers are FLAME-RESISTANT — they will not support a flame.
IDEAL ROLLER & MANUFACTURING CO.
Long Island City 1, N. Y. • Chicago 8, Ill. • Huntington Park, Cal.

WHERE PRESSES ROLL FAST...





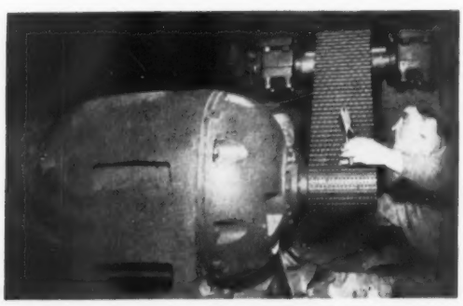
In the pressroom of the New York Daily News, Ramsey chain drives have solved a heat problem presented in the use of other transmission methods.

the choice is *RAMSEY* SILENT CHAIN DRIVE

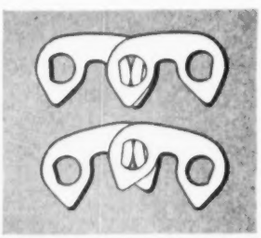
High speed operation for long periods, as in the presses of the New York Daily News, imposes a real test on drives. Here's where the smooth, slick rolling of RAMSEY Chain Drives pays off, in cool, quiet, almost frictionless transmission of power. And here's why:

The joint in each link junction is composed of two pins having curved bearing surfaces which roll on each other as the chain flexes. The chain *flows* over a sprocket like a snake over a stone wall. There's no noise, no heat, no complicated lubrication, and no perceptible wear over long periods.

Read the bulletin "Ramsey Chain Drives in the Printing Industry". On request.



Ramsey chain drive on a press in the plant of the Albany (N. Y.) **Times-Union**. This one delivers 100 hp.



The unique rolling Ramsey joint that enables the chain to transmit heavy loads, fast, with only rolling friction.

SILENT CHAIN DRIVES—FLEXIBLE COUPLINGS

RAMSEY CHAIN COMPANY, INC.

5156 BROADWAY • ALBANY, NEW YORK

Here's equipment designed and built by printing equipment experts for progressive printers with an eye on *more sales, bigger profits, satisfied customers* and repeat business!
Western Gear Works, one of the largest manufacturers of business form presses, and Orville Dutro and Son, design, sales and service organization, offer a complete range of Speed-Flex presses for every size shop, ColorVerter paper coloring machines, and roll to sheet Collators. Learn how these machines will open new avenues of profit for you.

Why not mail the coupon for full details?

direct inquiries to

WESTERN GEAR WORKS
PRINTING PRESS MANUFACTURERS

Orville Dutro & Son, Inc.
PRINTING PRESS SALES AND SERVICE

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RICHMOND 9377

NEW YORK, N.Y.
1133 BROADWAY
OREGON 5-9014

CHICAGO, ILL.
110 SO. DEARBORN ST.
RANDOLPH 6-7971

ORVILLE DUTRO & SON, INC.
1206 Maple Avenue, Los Angeles 15, Calif.
Please send me information on
☐ Speed-Flex Presses ☐ ColorVerter ☐ Collator

NAME_____

COMPANY_____

ADDRESS_____

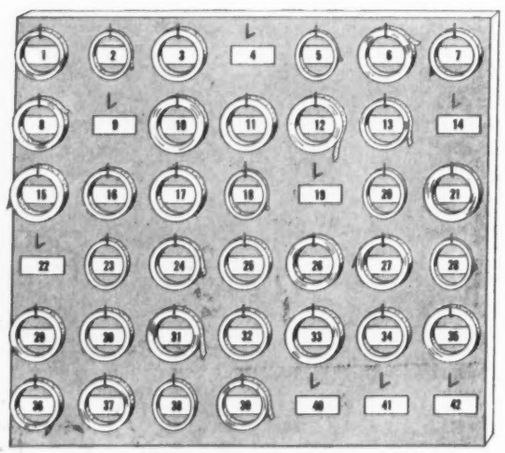
CITY_____ ZONE____ STATE_____

Reading time: 38 seconds
Subject: STORED LABOR

TELETYPESETTER equipment enables publishers to store labor in the form of tape instead of type and do it in half the time.

Here is how it works. Tape is prepared at high speed (400 or more actual lines per hour) on a Perforator that has a typewriter-like keyboard.

The perforated tape can be used immediately or stored in rolls until needed.



TYPICAL STORAGE BOARD FOR TAPE

When this perforated tape is inserted in the Operating Unit which is attached to the linecasting machine, slugs of type are automatically produced — steadily and continuously at 400 or more lines per hour on a standard linecasting machine and 600 or more lines per hour on a high speed machine.

In addition to punching tape in your own plant, you can receive tape by mail (syndicated and feature stories) or by wire from the regular news services.

Thus, with a TELETYPESETTER system you can store labor in tape form so as to 1) set type now 2) set type in the future 3) set type at a distance 4) set type several times.

PRODUCTION BALANCING ELIMINATES NIGHT DIFFERENTIAL

PERFORATE TAPE — DAY SHIFT

SET TYPE AUTOMATICALLY — 3 SHIFTS

More than 1,200 publishers are already taking advantage of the time and money-saving economies of TELETYPESETTER equipment. Perhaps you can, too. For full information, write to Teletypesetter Corporation, Dept. PE3, 2752 N. Clybourn Avenue, Chicago 14, Illinois.

TELETYPESETTER

What would you look for in buying a job cylinder press?

Henry M. Newman is president of the McKenzie Service, Inc., in New York, the world's largest imprinters.

Here's how the president of the world's largest imprinting service answers that question:

"We always look for the following: *versatility* in handling a large variety of stocks and sizes, *quick getaway, quick change* of type or forms, low *upkeep,* and *high production.* And even though we specialize in imprinting for the trade, our presses must often turn out fine printing quality over a full 12" x 18" form. That means we need good *distribution.*"

McKenzie Service, Inc., has been operating Little Giants for 25 years; now has 18 of them.

And here's how ATF's Little Giant measures up to Mr. Newman's check-list:

ATF's Little Giant covers a full range of sizes and stocks from tissue up to four-ply card. Quick makeready, getaway and changeover are also easy. It will cruise with any job cylinder on the market and produce at the lowest cost per thousand impressions.

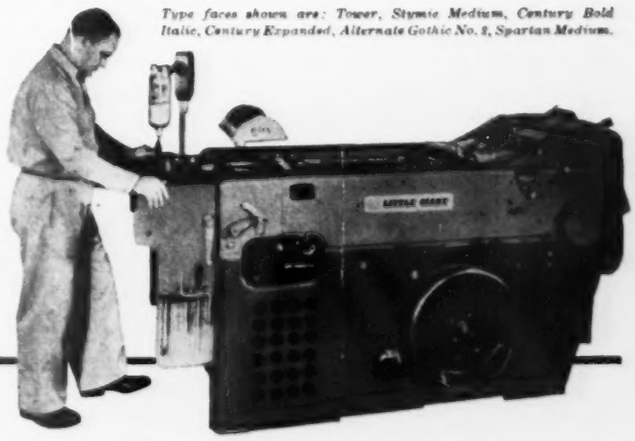
But for finer distribution the Little Giant has three form rollers plus three gear driven vibrators and two distributor rollers, more than any other press in its size range.

There are many good presses on the market today, but if you'll check them all, on these same points, we think you'll decide on the ATF Little Giant.

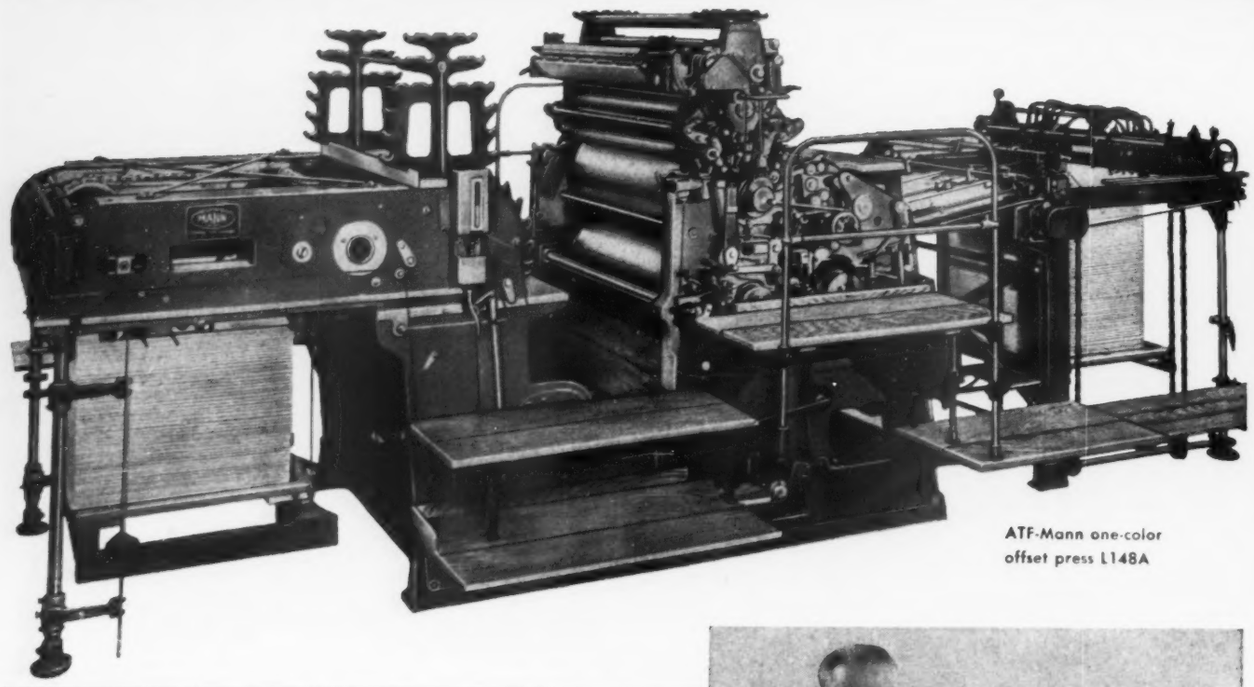
Write today for the complete story on the Little Giant 6. AMERICAN TYPE FOUNDERS, *a subsidiary of Daystrom, Inc.*, 200 Elmora Avenue, Elizabeth, New Jersey.

ATF

Type faces shown are: Tower, Stymie Medium, Century Bold Italic, Century Expanded, Alternate Gothic No. 2, Spartan Medium.



BETTER, MORE PROFITABLE PRINTING FROM THE WIDEST LINE OF PROCESSES...GRAVURE...LETTERPRESS...OFFSET



ATF-Mann one-color offset press L148A

"We turn out top-grade lithography at profitable production speeds on our ATF-Mann press"

• Ask any of the men who own, or run, an ATF-Mann one-color press and you'll get this story every time. Here's why:

The basic design of the ATF-Mann is different than that of other offset presses. Massive, balanced construction, and unequalled precision engineering of moving parts keep the ATF-Mann running smoothly in the high speed range.

The smoothness of operation and the accessibility of every ATF-Mann control provide an accuracy of adjustment never before possible. And the exclusive features of the new ATF-Mann open up new possibilities in the control of inking, register, impression. That's why the ATF-Mann turns out high-grade lithography at speeds of 4000 to 6000 impressions per hour.

The seven presses in the ATF-Mann one-color line range from a 23"x36" to a 42"x65" maximum sheet size. Expert ATF-Mann maintenance and parts service is immediately available through all ATF branches. For complete information, write American Type Founders, *a subsidiary of Daystrom, Inc.*, 200 Elmora Avenue, Elizabeth, New Jersey.

Ask the man who owns a Mann—he'll tell you...

"IT PAYS TO BUY THE FINEST"

Features of the new ATF Mann presses:

FLOATING IMPRESSION: Massive centrifugally-cast precision bearings support the entire weight of the cylinders without bearers. Proper engineering and massive construction permit this exclusive feature which results in better quality lithography.

EXCLUSIVE INKING SYSTEM: Mann presses have more rollers, more inches of ink travel from fountain to plate, and fuller coverage of the form than any offset press in America.

MASSIVE CONSTRUCTION: Size-for-size, Mann presses are the heaviest presses built, and weight is the basic requirement for good register. Unequalled sturdiness of frames, journals, bearings, helical gears and moving parts keep these precision machines running smoothly.

Type faces shown are: Bodoni, Spartan, Dom Casual, Alternate Gothic No. 2.

Better, more profitable printing from the widest line of processes...

GRAVURE...LETTERPRESS...OFFSET

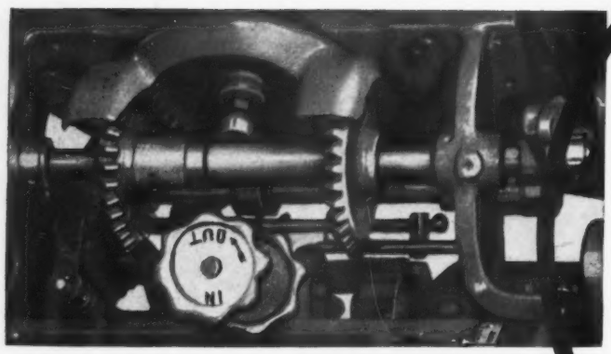
ATF

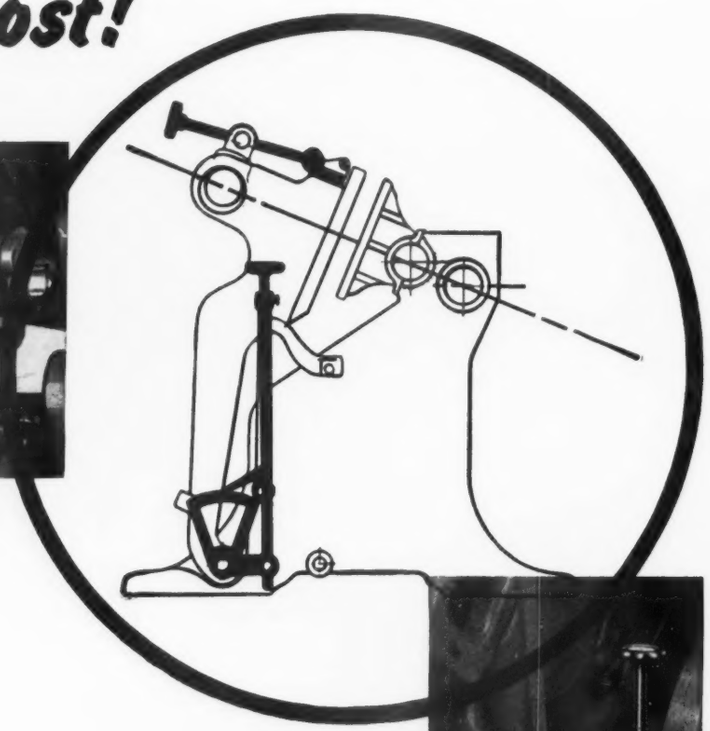
We Couldn't Have Said It Better Ourselves!
HERE'S WHAT A FEW PRINTERS SAY ABOUT Strong GRAFARC LAMPS
"HAS DOUBLED OUR CAPACITY IN MAKING PLATES." —AN INDIANAPOLIS LITHOGRAPHER
"Has enabled us to reduce our exposures of deep-etch plates by two minutes and thirty seconds, and on flat plates, one minute, which certainly is A GREAT SAVING TO US. The features which appeal to us most are: (1) The easy handling and operation. (2) The clarity and steady burning of carbons, and, (3) the improved method of carbon holders." A WINNIPEG, CANADA PRINTER AND LITHOGRAPHER.
"We would hate to return to the older type." —A BINGHAMTON, N.Y. LITHOGRAPHER.
"The COVERAGE IS VERY GOOD and there is NO FLUCTUATION IN LIGHTING." —A ST. LOUIS PRINTER.
"ONE OF OUR PROUDEST POSSESSIONS." —A NEW YORK CITY PRINTER.
"WE WONDER HOW WE GOT ALONG WITHOUT IT for so long." —A SALT LAKE CITY LITHOGRAPHER.
"We have been particularly well pleased in its uniform coverage of large areas, and OUR STANDARD EXPOSURE TIME HAS BEEN CUT IN HALF ON NEARLY ALL KINDS OF WORK." —A LOUISVILLE PRINTER.
THE STRONG ELECTRIC CORPORATION
307 City Park Avenue • Toledo 2, Ohio
Please send free literature and prices on the complete line of Strong Grafarc Lamps.
NAME
FIRM
STREET
CITY & STATE
NAME OF SUPPLIER
For control that improves quality, intensity that speeds production, efficiency that saves you money, install Strong Grafarc Fully Automatic High-Intensity Arc Lamps.
Models for all photo-mechanical reproduction processes.
Use coupon now to obtain prices and complete literature.

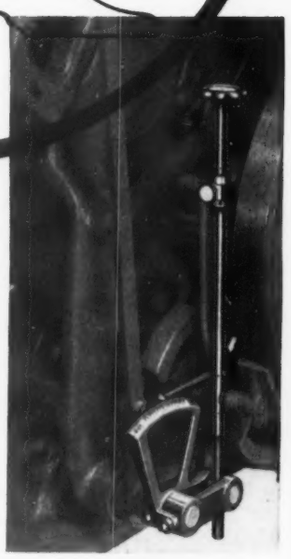
• TWO IMPRESSION CONTROLS

ON C & P CRAFTSMAN AUTOMATIC PRESSES PRODUCE BETTER PRINTING . . .

At Lower Cost!





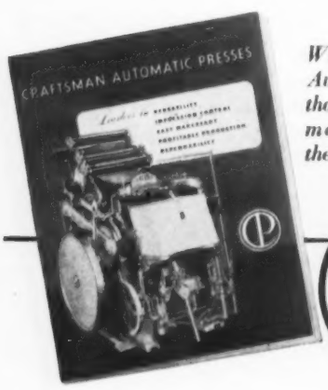


On C & P Craftsman Automatics you can regulate impression with mechanical accuracy to the exact requirements of each individual job without touching the packing on the platen.

Two handwheels are used. The upper one regulates the impression. The lower handwheel keeps platen and bed always parallel—a very important factor if you want to print "close to the iron" for sharp impressions, less type wear, no slurring and unwanted embossing.

With these *two* handwheels for impression control the operator always knows exactly how much impression he is adding or removing because *both* adjustments are equipped with scales and indicators.

If you want *complete impression control* on a platen press you'll decide on a C & P Craftsman Automatic.



Write for the Craftsman Automatic Press Booklet that gives ALL the profit-making advantages of these versatile presses.

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Books

(Continued from Page 28)

ents which experienced pressmen have used to handle unusual problems, such as excessive static, feeding thin stock, delivering curly stock, etc.

The manual is intended for distribution to owners of Miller 27 in. by 41 in. SY presses, but copies may be purchased for $3.00. Inquiries should be addressed to Donald Depew, Customer Services Dept., Miller Printing Machinery Co., 1101-1131 Reedsdale St., Pittsburgh 33, Pa.

A Course in Estimating

WHAT printing plant, whether large, medium or small, in operation in this era of highly competitive selling can afford risking its life by other than a clearly defined cost estimating system? We pose this question because all too frequently there is an uncertainty on the part of printer and customer alike regarding the pricing of the myriad pieces and operations involved in the production of thousands upon thousands of printed sheets containing all sorts of color and processed with any one of a number of different available innovations.

Think of it for a moment. Each move of the worker, each change of the machine, each piece of material added—must be accounted for in the final price of a job which perhaps had a press run of a million or more impressions. Also take into account the vast range of methods and processes available to produce printing. No wonder it has been said so many times that printing today is a complex operation.

So why shouldn't we conclude that the work of the estimator is just as important in bringing about the production of the desired end product as that of the designer, the compositor, or the pressman? Printing Industry of America has issued its latest available guide for this important member of the printing production team in the form of an impressive appearing manual appropriately labeled *A Course in Estimating*.

Author of the manual is Henry A. Paulsen, Dir. of Cost Estimating, Brown & Bigelow, St. Paul, Minn. He was assisted by several PIA committees who undertook the enormous task of reviewing material and contributed talents in other ways.

Prepared in loose leaf form as part of the PIA Tools of Industry Series, it contains a wealth of information in the 206 pages comprising the main section of the manual as well as the numerous inserted material contributed by different industry groups. There are sections in the manual on estimating materials, composition, letterpress printing, offset lithography and finishing operations.

These are broad categories under which all sorts of aids and suggestions may be found. Of immense assistance to the person concerned with the cost operation are the 50 forms reproduced in the manual for the estimator's use. These take into consideration everything from a Request for Estimate to Two-Color Cylinder Press Specifications, and then from Impression Expectancy of Offset Plates to Inserting and Mailing Schedule.

(*Continued on Page 85*)

Announcing the

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FEATURE BY FEATURE, IT'S ENGINEERED TO MEET YOUR OWN HANDLING REQUIREMENTS

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Platform: 4000, 6000 lbs. cap

Stacker: 1500, 2000, 2500, 3000 lbs. cap.

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- **Maximum Maneuverability** — Only 26" longer than the load, the shortest standard truck on the market.
- **Light Weight**—Completely fabricated construction combines maximum strength with least weight.
- **Stability**—Close-to-the-floor, low center of gravity.
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- **Safety**—Deadman switch cuts power when brake is applied, handle automatically returns to brake-position.
- **Easy to Service**—All operating units accessible without lifting or dismantling. Drive wheel tire is quickly demountable.

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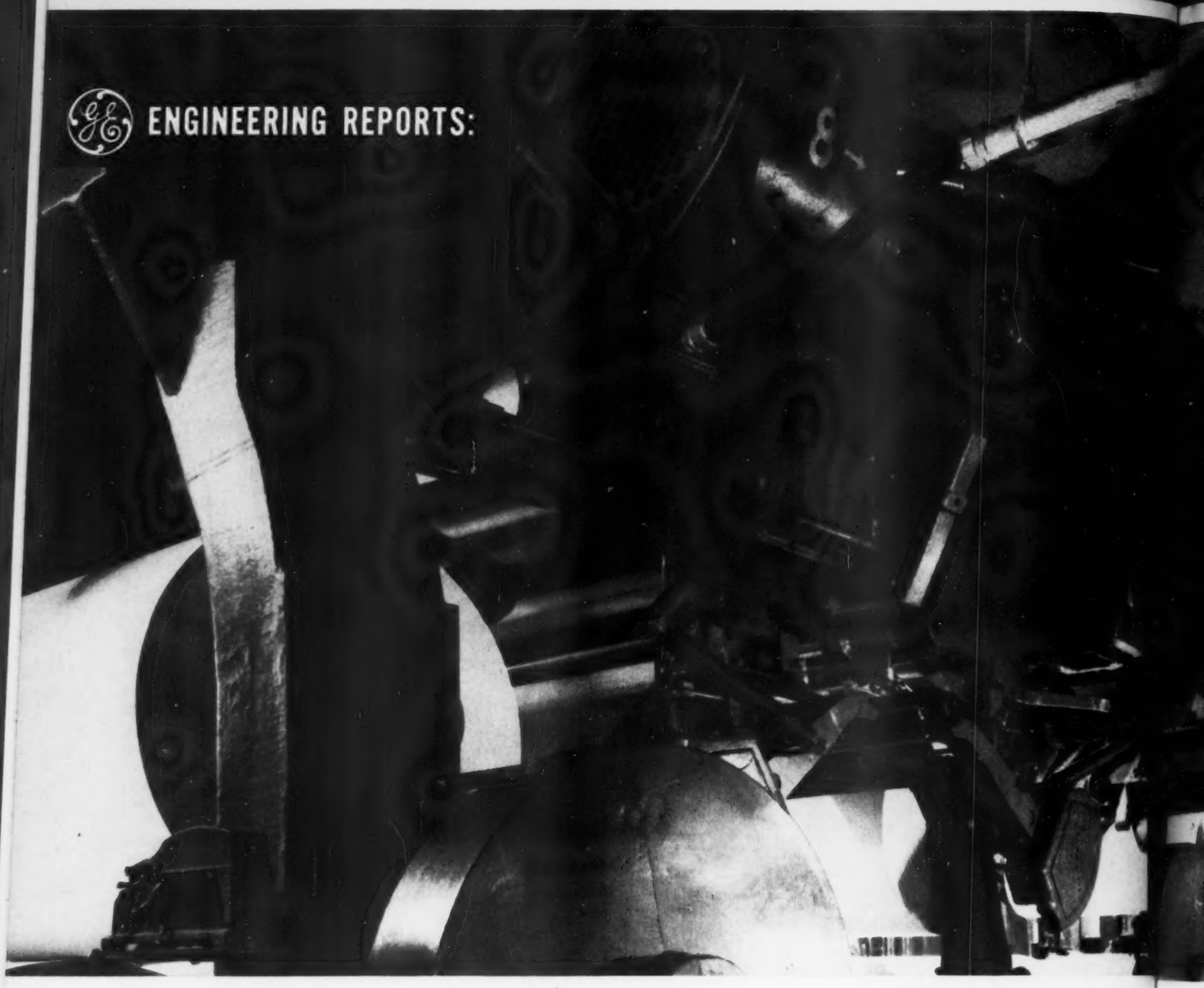


Oakland Tribune's new G-E electronic press drive accelerates smoothly, reduces web breaks

Powered through electronic control, 10 G-E d-c drive motors rolled the Oakland Tribune's new Hoe Press for the first time early in March, 1953.

A G-E Service Engineer worked closely with the *Tribune* and on the day following final mechanical adjustments, March 13, the first edition came off this 50,000 pph press. Since that time it has been in continuous operation.

Joining a long list of newspapers using the G-E Electronic Press Drive, the *Oakland Tribune* is now taking advantage of this drive's flexibility and smooth operating characteristics. Like the other newspaper publishers across the country using this electronic press drive, the *Tribune* realizes that —

1. The smoothness of operation, both starting and stopping, results in fewer web breaks and more production.

Stepless speed adjustment eliminates web-breaking jerky speed jumps. The press climbs from threading to full-speed smoothly and easily. When stopping, dynamic braking on each unit brings the press to a smooth stop. The cost of brake adjustment and maintenance is eliminated.

2. The wide variety of press combinations makes this an extremely versatile and flexible drive.

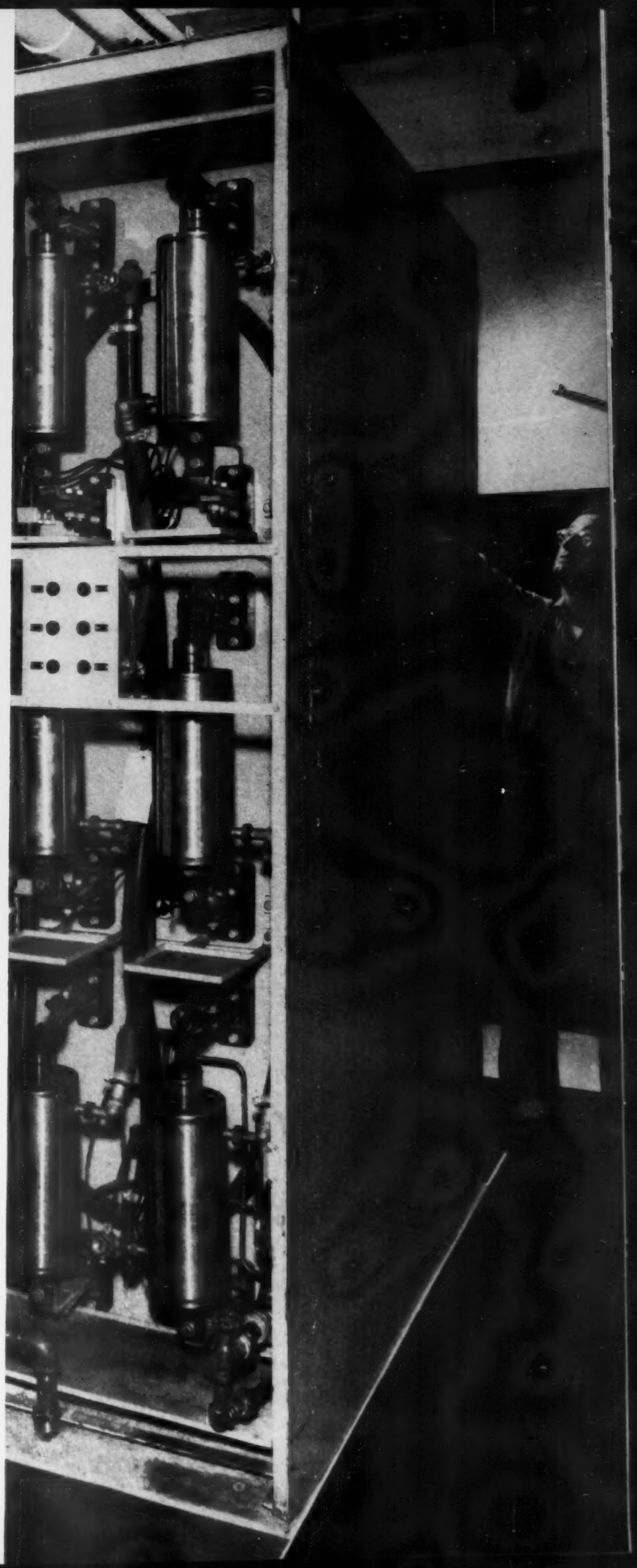
With an individual drive motor for each press unit and folder, each motor handles threading, inching, running, and braking for its unit. Since any combination of press units can be arranged, the *Tribune* can meet varying production schedules as well as possible color runs.

Besides flexibility, the individual drive system is "production insurance." In the event of motor failure, two-thirds of the motors will operate all units of the press at above two-thirds speed.

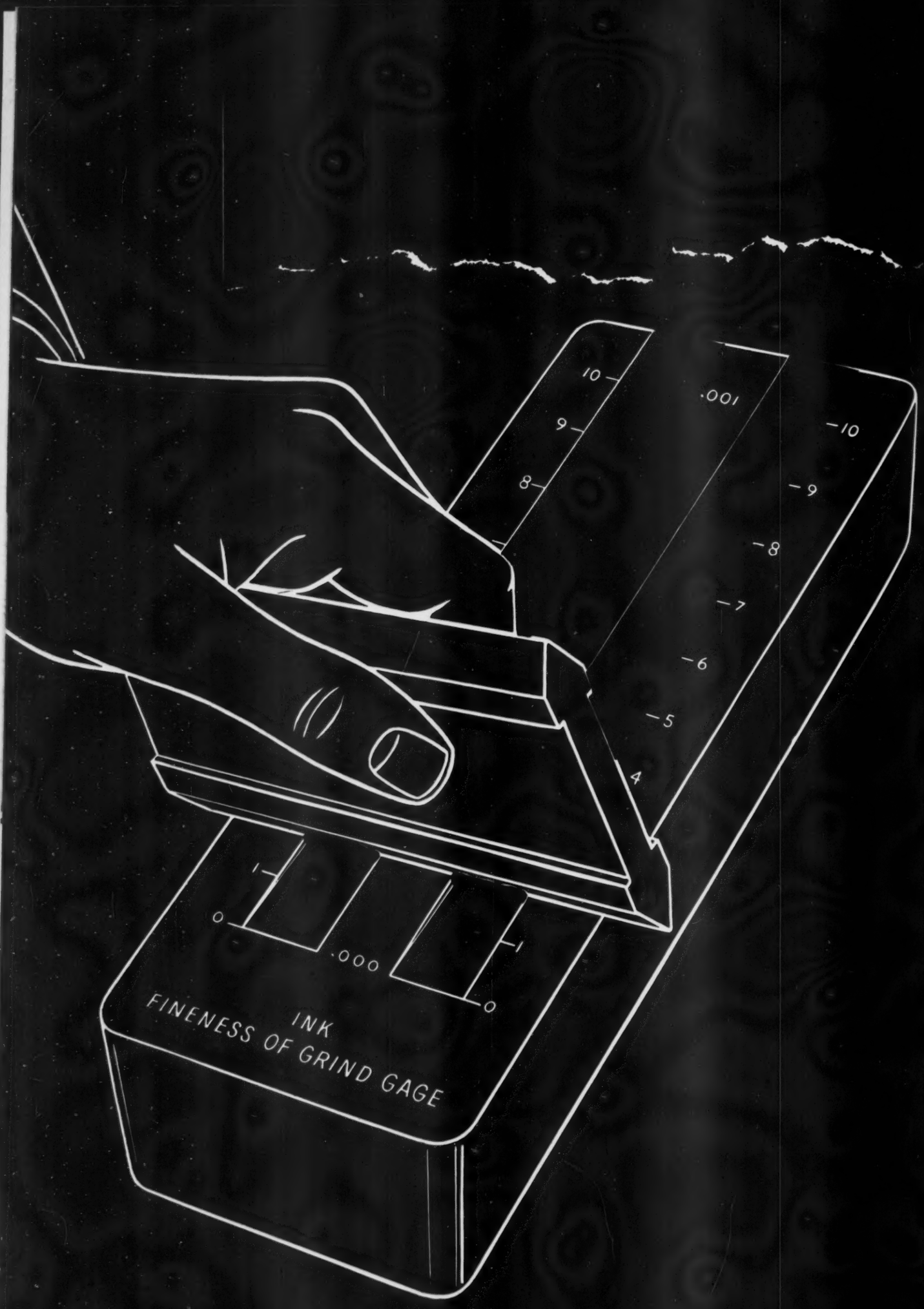
Investigate this modern drive for use on your newspaper press. G.E.'s application and sales engineers will be glad to discuss it with you. Contact your nearest General Electric Apparatus Sales Office or write for Bulletin GEA-5523. General Electric Company, Section 653-33, Schenectady 5, N. Y.

GENERAL ELECTRIC

All power requirements are handled on the Oakland Tribune's new Hoe Color Convertible Press with 10 individual G-E drive motors. Individual adjustable-speed drives on each press and folder unit eliminate the need for slow motion motors, over-running clutches, and drive and press brakes. Fire hazards are reduced, maintenance costs lowered by force ventilating of motors.



Giving the Oakland Tribune economical flexibility and close speed control, the ignitron rectifier controls and powers the drive. Operating to supply adjustable voltage to the motor, these units are designed in "building-block" fashion to accommodate future units. All components are easily accessible through full front and back doors.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FINENESS OF GRIND GAGE

IPI Ink experts use this extra safeguard to prevent ink "fill-in"

This precision gage measures the fineness of pigment grinds. With it, IPI ink men can be sure that each batch of ink is free of oversize pigment particles. With it, we can produce smoother inks for sharper, cleaner printing.

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Quality control is the watchword in all IPI ink-making operations. The fineness of grind gage is just one of the many precise instruments used by IPI to give you the right ink for each job . . . ink that will print best on a particular stock with a given make and style of press. It is an important check on all types of ink whether for letterpress, offset lithography or flexography . . . for package and fibre board printing as well as for the most delicate line and halftone work.

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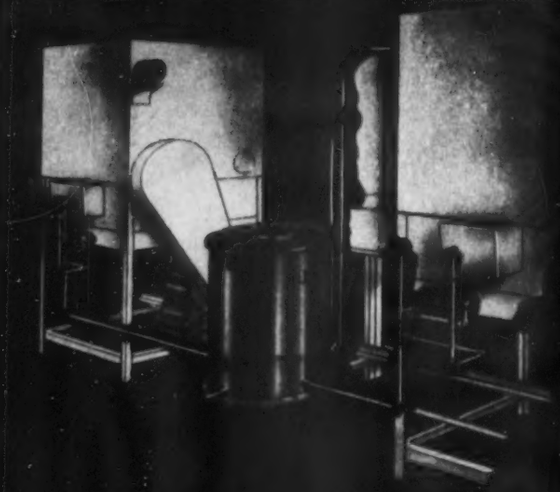

NITRIC ACID NEUTRALIZER

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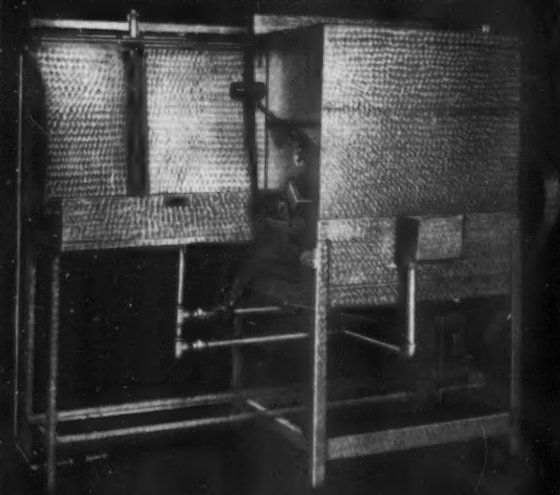
LEVER CONTROLLED ETCHER



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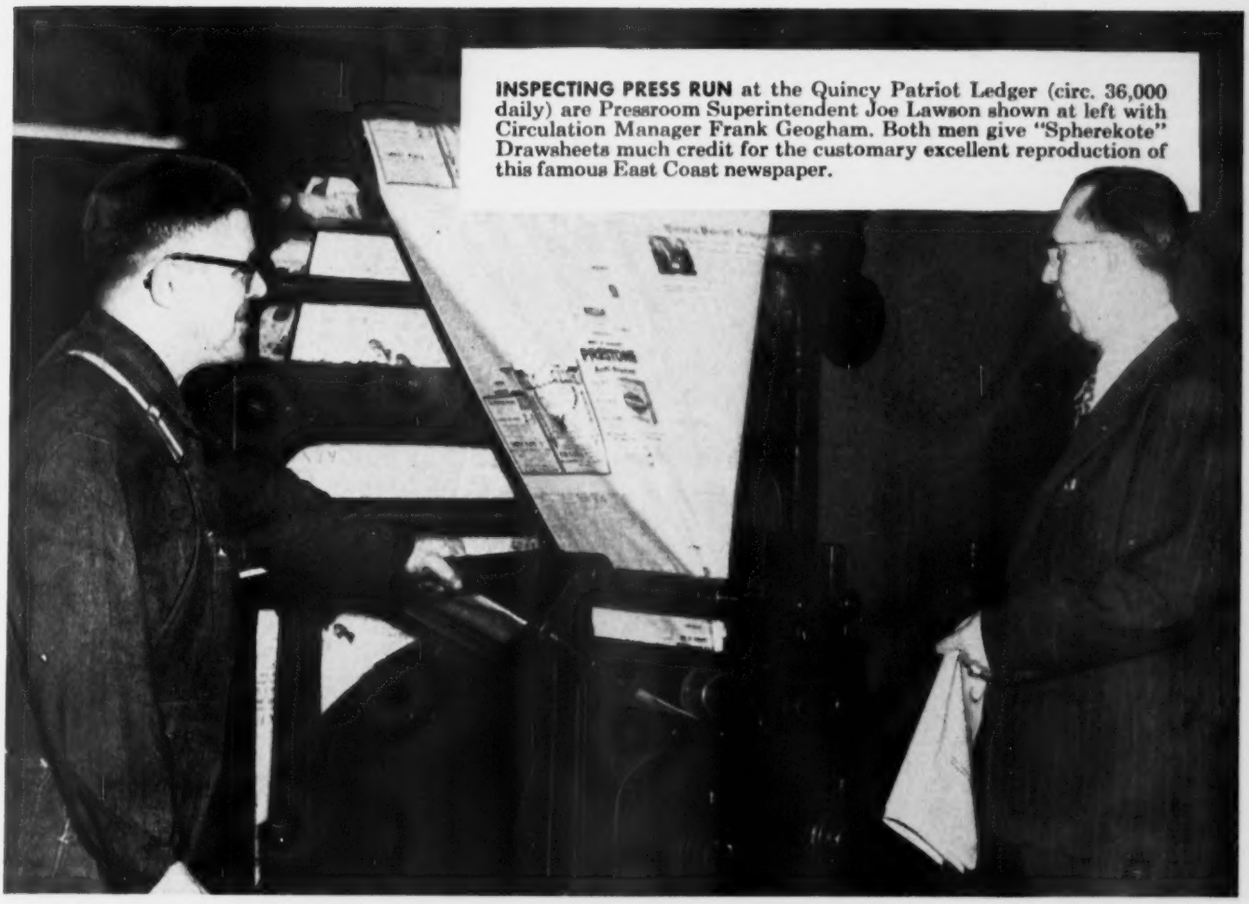

INSPECTING PRESS RUN at the Quincy Patriot Ledger (circ. 36,000 daily) are Pressroom Superintendent Joe Lawson shown at left with Circulation Manager Frank Geogham. Both men give "Spherekote" Drawsheets much credit for the customary excellent reproduction of this famous East Coast newspaper.

"SPHEREKOTE" Drawsheets reduce first-impression offset at QUINCY (Mass.) PATRIOT LEDGER

A VETERAN of 15 years' service with this Quincy, Mass. newspaper, Joe Lawson knows the value of top quality press packing. That's why he has equipped 11 units of Duplex Tubular with "Spherekote" Brand Type 26 Drawsheets. He's learned from experience that these tough, glass-bead surfaced draws clean up his first impression pages—solve his offset problems for keeps. He's also pleased with the 18 to 20 months' service he gets from each and every sheet. Why not try this superior press packing yourself? You'll get the same good results.

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PRINTING
EQUIPMENT
Engineer
March 1954

small and medium printers —

what they can do

to meet competitive growth

Setting plant in order to cope with customer competition—Pointers on improving plant conditions which must be self-liquidating.

By J. W. ROCKEFELLER, jr.*
**J. W. Rockefeller, jr. and Associates, New York, N. Y.*

THE lot of the small printer, never an easy one, is becoming increasingly more difficult. Paradoxically enough, this is not because the actual technique of producing printing has become more complex; but rather because it has become more simplified.

In order to clarify this point, let us consider what has taken place in the city of Montreal over a period of five years. Much of the work which at one time was done on hand fed job presses or more recently on small automatic presses, found its way to small offset presses, which generally are easier to operate and considerably easier for which to make plates. This would seem at first glance to simplify the printer's problems. All he had to do was to put in a small offset department, train a few people on the equipment and reduce form printing to its simplest procedure. This, however, is not exactly the way it worked out.

Competition from Customer

In 1946, there were 38 small offset machines in operation in private plants and 24 in commercial plants. Four years later there were 124 in private plants and 45 in commercial plants. The small printer had found a new source of competition. It was coming from the customer himself.

There are good reasons for not establishing a private printing plant. There are some irrefutable arguments for not expanding the private printing plant once it has been started. We have, however, never seen these arguments set forth in any of the pamphlets printed to discourage the private plant.

What Private Plant Has To Do With Problem

What has the private printing plant to do with an article which purports to answer the question "What can management of the small or medium size commercial printing plant do to improve present quarters and/or operations?" Just this: In any intelligent planning for production the first question to settle is what is going to be produced. We must determine the market before setting up to supply that market. Between 1930 and 1935 when most printers were facing some pretty tough problems, we were called into a number of medium-size printing plants to help in determining their solution. In a number of cases, the solution consisted in part of eliminating or greatly reducing the composing room and modernizing the pressroom and bindery. To the best of our knowledge, not one of these printers, whether operating in New York, N. Y., Charlotte, N. C., or any place where trade composition was available, ever regretted this step. We hope this statement will not be interpreted as a blanket recommendation to eliminate all composing rooms. In plants where the recommendation was made, it

EDITOR'S NOTE:

It is just possible that some small and medium printers should evaluate their present operations to determine if certain drastic steps should be taken so they may continue their respective businesses at a profit. Some valuable suggestions are made also by the writer of this article regarding plant improvements. Rockefeller's point of view is that of the engineer (not the social worker). He points out that plant improvements, therefore, must be self-liquidating or they will constitute a handicap to the company in a competitive market. The article is logical and suggests to the printer that he must keep pace with our changing times if he is to survive.

SUPERINTENDENT'S OFFICE LOCATION

One of the supervision problems in the medium-size and small plant is where to locate the headquarters of the superintendent. His work is both supervisory and administrative in character. He needs an office in which to plan the work, discuss problems with his foremen, and review the summaries of his day's production. On the other hand, his presence in the shop frequently serves as an incentive to the worker to do his best. Too often, when a superintendent is given a nice, comfortable place in the office, he gets so far from what is going on in the shop that he no longer supervises. A happy compromise has been found in some instances by furnishing the superintendent with a glass enclosed office from which he can see most shop operations. This is frequently not only good for the superintendent but just as good for those under his jurisdiction.

was felt when the interest on his investment was taken into consideration that the printer could buy his composition outside considerably cheaper than he could produce it himself.

The medium size printer today must make a disinterested and detached study of the effect of competition (including the small private plant) on his business, and make up his mind that his customer is not going to purchase from him anything that he can purchase elsewhere cheaper or better or do more economically himself.

Determining What Is To Be Produced

Step No. 1, then, in improving his quarters and operations is for the printer to determine just what operations his plant should perform. He may even wish to consult with his customers to determine how he can better serve them by making changes. His customers' plans may have a considerable bearing upon his own.

Fitting Your Plant to Revised Condition

If a customer, for example, is planning to do a little printing on his own, the printer may suggest that instead of setting up a duplicate plant that the customer restrict his printing to composition. It is here, perhaps that the customer has the greatest opportunity to realize savings. Cold type setting equipment in the plant of the customer may not only be a less severe threat to the printer's business than his customers' installations of presses, but, may actually work to the commercial printers' advantage. The commercial printer might even take the initiative and recommend that the customer concentrate on reducing the purchase of composition, including the frequently expensive authors' alterations, by making an investment in cold typesetting equipment rather than in presses. It is at this stage of printing that most of the detail work occurs and such a division of composition and press and bindery work between the printer and his customer might prove a mutually beneficial and lasting setup. If such an arrangement is made, the printer might well plan to get rid of a good part of his composing room and put the cash realized from its liquidation into his pressroom and bindery.

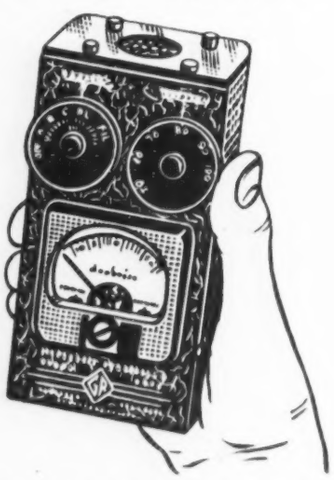


Fig. 1.—This General Radio Co. Sound-Survey Meter (aside from other uses) may be used in preliminary surveys to determine noise levels in offices and mechanical departments and for determining levels from office equipment and machinery. Its range is from 40 decibels to 136 db above standard reference level.

Once the commercial printer has taken the first major step here, he may find himself on the road towards specialization, a beneficial move since, in our estimation, therein lies his most favorable opportunity.

Analyze Plant Overhead

In the average printing plant, both large and small, there are a number of overhead items which considerably increase the basic costs of producing printing. Perhaps the most important item is that accounted for by indirect labor, both plant and clerical. In the former category would fall such items as maintenance work and materials handling. It should be noted that it is not necessary to have employees listed as maintenance men or personnel for materials handling in order to have the cost of these services added to the payroll. These functions must be performed whether they are carried out by specialists or whether they are performed by higher-priced pressmen. It is usually cheaper to employ porters to do the necessary handling of the materials and to furnish them with the proper equipment than it is to have this work done by journeymen printers at a considerably higher scale. You cannot eliminate porter work by the simple expedient of cutting porters off the payroll.

Clerical Work

That which applies to maintenance work and materials handling applies as well to clerical work. All entries of time and other bookkeeping procedure should, as far as possible, be kept out of the hands of journeymen printers. Not only are they too high-priced to perform such duties but when they are performing them the cost is a hidden one and may show up only as a low press average, high makeready time, etc. If these operations are performed by specialists, their cost is usually more accurately noted. Once the cost is known it is frequently a relatively easy matter to reduce it.

Monthly Physical Inventory

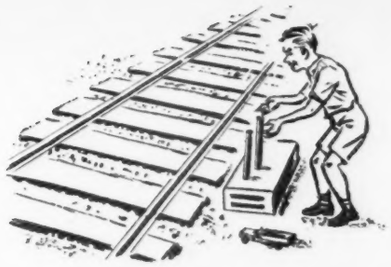
Let us take, for example, the matter of estimating the value of work in process which is necessary for the compilation of profit and loss statements. When this figure is obtained by posting from the job cost summary tickets, it requires considerable clerical labor of both clerks and shop operatives and frequently results in a delay in obtaining the profit and loss statement. In some plants, this has been eliminated by an actual estimated physical inventory, which is taken once a month and which has in instances proved

(*Continued on Page 95*)

Fig. 2.—This Weston Light Meter is used for measuring intensity of illumination in a given working area in office or printing plant. Lighting is of greatest importance to printers.

NON-PROFITABLE WORK—ABANDON IT

We believe the first step for the printer to take in improving his plant and operations is to survey his printing field and get out of that part of it which holds little promise of profit. In doing so, it may be possible for him to liquidate some out-of-date equipment and to make more room for profitable operations.



Maybe it's time to build new

By ROBERT W. DICKERSON*
*Architect-Engineer, Cleveland, O.

MANY signs point toward a better day for those whose plant facilities are in need of improvement, expansion or replacement. After more than a decade-and-a-half of national emergency overcast, the sun appears, temporarily at least, to be breaking through. Many of the scarcities and restrictions, which we had all but come to accept as normal, are abating, and those whose improvement programs had been deferred, or who had limited their improvements to the level of bare necessity, can now "dust off" their programs and review them with some prospect that they may at last become reality.

One of the by-products of a period such as the one from which we appear to be emerging has been the trend toward limited, piecemeal planning. This is entirely understandable for, with our national security program getting first call on all materials and services necessary to its success, the margin left for civilian needs had to be stretched far and thin. In consequence, much of our thinking with respect to plant improvements, expansion, etc., has taken the vein of making maximum use of present plant and equipment, adding equipment and construction sparingly, and deferring any comprehensive programs until some later and more favorable time. Within proper limits, this has been sound thinking and occasions no condemnation or criticism. But, as we face conditions under which bigger and better things may be accomplished, it is wise that we take a long range look at our needs and the various ways in which they may be satisfied, and not allow the limitations of yesterday to unduly influence our planning.

Build New or Not?

The question of whether to build new, or to remodel or expand an existing building is one which confronts many who need improved space and facilities. While the question is not one which can be answered by generalities, but calls for the thoughtful analysis of each individual situation, it may be helpful if some of the advantages of new construction are pointed out. It should be borne in mind, however, that many thoroughly practical and economically sound programs have been carried out with existing buildings, and that there are many more whose condition, location, etc., are such that they are well worth remodelling and expanding.

Some of the advantages which a newly constructed building may provide are the following:

(1) Tailor made space
(2) Modern materials and methods of construction
(3) Improvements in building and plant equipment
(4) Better site and location
(5) Better construction cost control

Reasons for Making Improvements

Heading all lists of reasons for making plant improvements are these:

(0) The need for more space
(2) The need for better space arrangement

While the need for more space can often be satisfied by adding any desired or attainable quantity of floor area to an existing building, the probability of meeting the requirement of better space arrangement is much greater in a new building. For any given industrial operation, space tailored to fit the needs of that operation is much more likely to provide smooth, efficient production than made over space originally planned for some other use. In any printing or publishing establishment, it is readily apparent that proper sequence and close physical proximity are essential for many operations. If some process or sub-operation must be shunted to another floor level, or to another remote location, because space to accommodate it in its proper relation to production is not available, the whole operation is being penalized. While the shape and size of the site obviously influence planning (and more will be said of this in a later paragraph) it is usually possible to avoid such mallocations in a newly planned building. By and large, a

great deal more can be done to arrange space efficiently, starting from scratch, than is possible where such limiting features as existing walls, piers, stairways, etc., must be taken into account.

Those Floor Loadings

To tailor made space we may properly add tailor made construction. The floor loadings imposed by most operations in a printing plant are substantially higher than those required by many other occupancies. Consequently, when such loadings are imposed upon floors which were not designed to accommodate them, the results are not always fortunate. While the record of actual floor failures may not be impressive, the instances of sagging, out-of-level floors are many. Many and varied means have been employed to reinforce such floors, some showing real ingenuity, and others which might be

(Continued on Page 93)

Materials Handling

in the printing plant — Suitable equipment contributes to efficiency

By FRANCIS A. WESTBROOK *
**Mechanical Engineer*

I.

THE large printing plant is definitely in the mass production class and, as such, is reliant on mechanical handling equipment. The same observation, more or less, is true of the medium and small plants. Many kinds of such equipment are now in use and without them it would be impossible to handle the great volume of materials and process them through the various operations at anything like present efficiency. This trend has, of course, been greatly stimulated by increased costs of labor, materials, space and other items.

Much of the handling machinery used has been specially designed for the service requirements of printing plants and some of it is of a general type suitable for many other industries. In still other instances special accessories for general handling equipment, or comparatively simple adaptations, are all that is required. This will become apparent when we consider how mechanical handling is applied in different kinds of printing plants.

There are a number of methods and machines for handling rolls of newsprint in newspaper plants as they come from the paper mills. At the unloading dock at the plant of the New Brunswick (N.J.) *Home News*, the newsprint is rolled on to a Gifford - Wood electrically operated lowering machine. In Fig. 1 the roll is being lowered. The permanently placed fingers on the floor automatically cause the newsprint to roll on to a waiting dolly or hand truck. A Lamson vertical hoist is used similarly, to bring rolls of paper from the street level to storage at the Syracuse (N.Y.) *Herald-Journal*.

In many instances, industrial trucks are employed to handle rolls of newsprint. The Fort Worth (Tex.) *Star-Telegram* uses several Towmotor gasolene-powered fork lift trucks to move rolls from freight cars to storage and thence to the pressroom. These trucks are fitted with an upender accessory whereby rolls may be picked up from a horizontal position and turned to a vertical one, or vice versa. The trucks can go into freight cars, carry the rolls to storage and stack them up to the ceiling (Fig. 2). They are also used in the *Star-Telegram* plant to deliver rolls from storage to the presses with a minimum of time and labor.

Before use was made of these trucks an eight-man crew gave full time to unloading and handling newsprint. A specific example of the savings realized is that formerly it took two men to deliver rolls to the presses, whereas now one with a truck delivers twice as much newsprint, sets them on end until needed, and then picks up each roll with the upender and turns the roll into a horizontal position and conveys it to the reel room ready to be put on the press reel.

By mechanical stacking to the ceiling, the capacity of the main warehouse has been almost doubled, with the same floor space. Flattened rolls and damaged edges have been practically eliminated. These advantages are usually realized in greater or lesser degree with all methods of mechanical handling. In addition, safety is promoted. Manual handling of such heavy materials is always a prolific source of accidents. Strains and heavy fatigue are likely to result in accidents.

In fact, the use of industrial power trucks of various types is now general in many printing plants. The speed of rotary presses and their consequent large consumption of paper have, especially in large cities where space is costly, created a storage problem. Power trucks with attachments for the fast picking up of rolls of paper and placing them so as to make use of all available overhead space are therefore of great advantage. Experience has shown that tiering four-high is both practical and speedy, provided the ceiling height is ample.

The Methodist Publishing House, Nashville, Tenn., employs a battery of Elwell-Parker electrically powered trucks to carry paper, binder board, inks, all kinds of raw materials, certain equipment, loads of Bibles, hymnals and other religious publications. Both paper in rolls and flat stock, up to 5000 lbs. per load, are handled mechanically. The trucks can operate in aisles only 4 ft. wide as seen in Fig. 3. Savings in time and labor have paid for the equipment in something like two years, or less.

In Fig. 4 is shown a truck with an attachment for rotating rolls from horizontal to vertical, or vice versa. Another type of attachment consists of two semi-circular steel arms which grip the roll securely without damaging the paper and make possible close and orderly stacking and quick pickup without pallets or skids. One user has reported a 20% saving in storage space due to the elimination of pallets.

(Continued on Page 92)

Fig. 1.—Gifford-Wood electrically operated newsprint roll drop at New Brunswick (N.J.) *Home News*. The roll is placed on the lowering machine which is flush with dock or truck apron above. When the machine has descended far enough, the roll is discharged to the fixed finger on the floor in the basement. The fingers automatically roll the newsprint onto the hand truck. A number of variations in these actions may be obtained with the same equipment.

Fig. 2.—A fork lift truck is stacking rolls of newsprint up to the ceilings. The truck picks roll from horizontal position and upends it by manipulation of the controls by the operator.

Fig. 3.—Elwell-Parker electric lift truck being operated in narrow aisle at Methodist Publishing House, Nashville, Tenn.

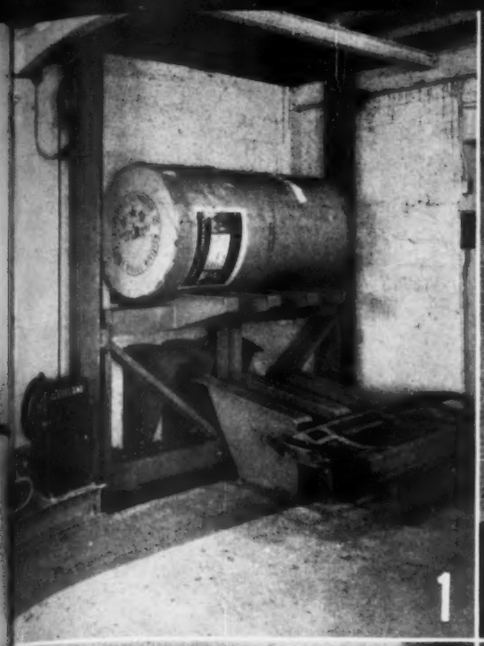
Fig. 4.—Truck equipped to turn paper stock rolls from vertical to horizontal position, or vice versa, and tier them or remove them from storage. (Photo courtesy Elwell-Parker Electric Co.)

Fig. 5.—Electric lift truck moving four-wheeled dolly loaded with bundled supplements for transportation to shipping department (Photo courtesy Elwell-Parker Electric Co.)

Fig. 6.—Here is shown a 1000 lb. capacity gas-powered Clark Equipment Co. fork-lift truck (Trucloader) in a printing plant used to handle skids of paper in storage areas. This truck also supplies paper to large presses and removes finished printed sheets to the trimmers or temporary storage.

Fig. 7.—Skidloads of flat stock weighing up to 4000 lbs. are moved in the plant of George F. McKiernan, Chicago printers, from storage to presses. Finished work similarly is transported from the pressroom to the shipping department by one man. Here is shown a Harris Press. (Photo courtesy Automatic Transportation Co.)

Fig. 8.—Automatic Transportation Co.'s Transtacker being used to deposit a partial skidload on the top of a rack. Note the skidload of two cases in the center tier and another partial skid at the bottom.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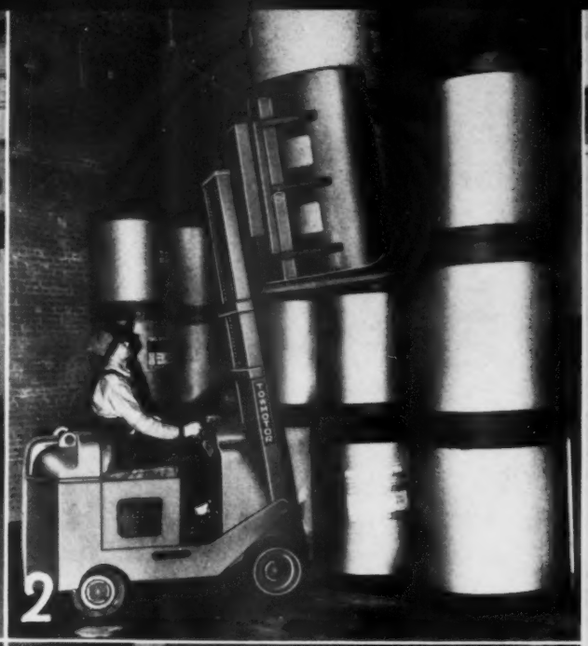
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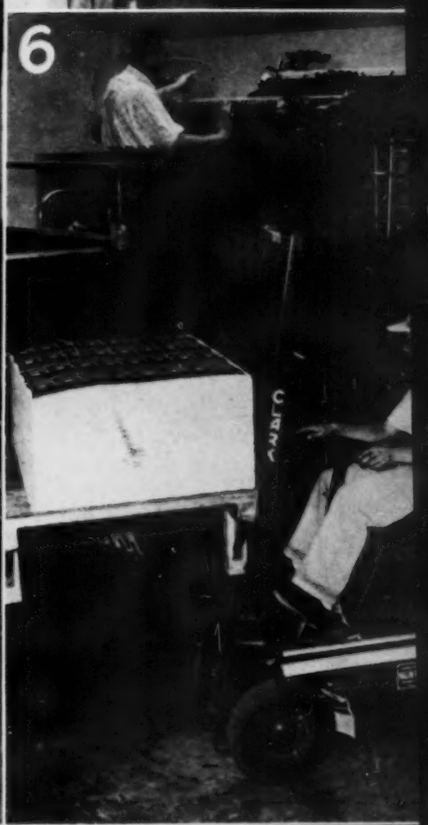
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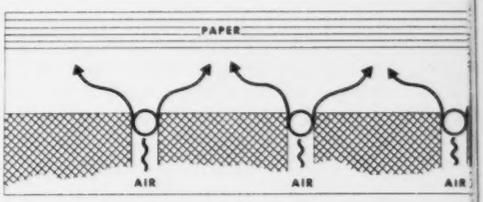
8

AUTO SPACE

With this Seybold Cutter, the Paper "Floats on Air"

Shoving stock into a big paper cutter used to take lots of brawn. But it's not necessary now. You can get a Seybold cutter with an air-film table to do the muscle work. The air film steps up productivity by taking much of the hard labor out of paper cutting. Here's how it works:

There are a number of tiny air jets in the surface of the cutter table. Each is closed over by a spring-loaded ball valve. When a lift of paper passes over the jets, the valves open and a film of air is released under the lift. Here's how it pays off:



No more "wrestling" is the operator's profit

On lifts as light as 30 pounds, the air film reduces friction between paper and table by about two thirds. On lifts as heavy as 400 pounds, friction is reduced by as much as 85%. The operator can position heavy lifts on the table with the finger tips of one hand.

More accurate work is the super's profit

The operator has no trouble jogging heavy stock snugly against the side and back gauges. He can be sure of cuts that are square and parallel every time. His work is just as accurate at the end of the day as in the morning, because he's not worn out from pushing and shoving heavy lifts. The bindery superintendent knows that these things add up to an improved flow of accurate work.

More production is the owner's profit

With the operator able to concentrate on precise cuts and trims, spoilage is reduced and customer complaints diminish. The steady pace at which he can work keeps a bigger volume of paper moving through the cutting room. This is shown by actual production records of owners using air-film-equipped Seybold cutters. They report substantial increases in volume over cutters with standard tables.

Cutters with automatic air-film tables, featuring patented Seybold refinements, are now available. These air-film tables can be furnished as optional equipment on new Seybold cutters in the larger sizes—50″, 64″, 85″ and 94″.

Everyone profits from improved graphic arts equipment. To develop and test such improvements, Harris-Seybold maintains a million-dollar-a-year research program for its products: power paper cutters, continuous book trimmers, offset lithographic presses, sheet collating machines, multiple-spindle paper drills, litho-chemicals, and other fine graphic arts equipment. Consult Harris-Seybold Company in all principal cities, or at 4510 East 71st Street, Cleveland 5, Ohio.

HARRIS-SEYBOLD

fine graphic arts equipment . . . for everybody's profit

Seybold 64″ Auto-Spacer paper cutter, equipped with air-film table, at Rudisill and Company, Inc., Lancaster, Pa. Color photograph by Cornelius.

Causes of Fires

(Abstracted from an address *Fire Prevention in the Printing Industry* delivered before the 32nd Annual Convention of the Intl. Assoc. of Printing House Craftsmen in Boston, August 1951, by Edward N. Montgomery, Deputy Chief in Charge, Fire Prevention Div., Boston Fire Dept. This advice still is up-to-date.)

I SHOULD like to point out some of the most common causes of fires in printing establishments. First, the use or misuse of flammable fluids. In many plants, the ink used for the usual type of letterhead printing and lithography contains carbon black or a pigment (for colors) mixed with linseed oil. Often times, for various reasons, one of the petroleum ethers is used as a solvent. Most of these have a flash point below room temperature. This means that should the ambient temperature be 70 deg. the fluid gives off a flammable vapor—invisible, but none the less lethal. The vapor saturation reaches its explosion point, an electric arc from a motor, a static spark, a lighted match or glowing cigarette produces the necessary heat—ignition—and a fire results. It is well to remember that anything in the line of paint, varnish, printers' inks or similar substances which dry rapidly should be considered dangerous. The use of Xylol is speedily increasing in your business. This is an exceedingly volatile liquid since it vaporizes well below the ambient temperature. Wherever and whenever it is used, efficient mechanical ventilation should be provided. In this connection, it is also well to remember that the use of aniline inks in cellophane printing is an extremely hazardous process because these inks contain methylated spirits. These hazards have been recognized by some manufacturers of printing equipment to the extent that presses are fitted with vapor extraction devices.

That ol' debbil

—acid—

a blessing— and a curse

IN THE 1952 Plant Planning and Improvement Issue of *Printing Equipment Engineer*, we printed an article entitled *Floors in the Printing Plant*. This article dealt at some length with the different types of floors for various mechanical departments in the plant.

In the article, acid proof floors for photoengraving and other platemaking plants were discussed. It was stated: "One of the toughest problems in selecting floors for the different departments in the printing and/or publishing plant, is to find one that will stand up indefinitely (by comparison with other departments) in the photoengravers' etching room or in the plating department of an electrotype or stereotype plant."

This year we will discuss to some extent, the means for drain disposal of spent acid solutions used in the photoengraving and/or platemaking department.

As everybody knows who is at all familiar with the operation of this type of plant, the acids used are nitric, iron perchloride and chromic. It seems that chromic acid presents the most serious disposal problem.

Many highly talented chemists, engineers and flooring specialists have devoted much time and effort to the problem. In some plants, concrete floors are covered periodically with a fresh coating of asphaltum as required. Constant watchfulness to detect honeycombed or disintegrated floor surfaces about the etching or plating machines is required. In such plants, wooden slat catwalks are provided upon which the workmen tread while attending to their duties. We could devote a considerable part of this discussion to the matter of wearing proper clothing and shoes, but we will leave that to the National Safety Council, which organization no doubt has gone into the subject thoroughly from time to time.

Acid solutions, even though they may be disposed of in spent form after use, just don't seem to have respect for anybody or anything. In the article on floors referred to above, we quoted U. S. Stoneware to the effect that "Strictly speaking, no floor can be made acid (or acid and alkali) proof, any more than a tire can be made skid-proof or blowout-proof; but properly constructed of suitable materials, floors can be made with such a high degree of corrosion resistance and with such rugged physical properties, that they will serve many years without repair expense. . ."

Manufacturers of various types of acid resisting materials for drainage purposes have come up with different products in an effort to solve the difficulties encountered in disposing of spent acid solutions.

Chemco Nitric Acid Neutralizer

In Fig. 1 is shown Chemco Photoproducts Co.'s Chemco Nitric Acid Neutralizer. This equipment is in regular use by photoengravers.

The neutralizer equipment consists primarily of a stainless steel tank connected to one or two etching machines with acid resisting pipes. The neutralizer tank equipment may be installed immediately adjacent to the etching machine or it may be placed on a floor below the etching machines but must be connected to the etching machines with acid resistant pipe.

Glass Drain Lines

Occasionally, we are asked about spent acid waste disposal in platemaking plants. Only general information can be given regarding a troublesome problem particularly with respect to photoengraving plants. It seems that spent nitric acid even if of 30% to 40% strength requires the use of "armor-proof" disposal drain lines.

In one photoengraving plant, each etching machine is provided with a ceramic drain cock. Underneath, but not in contact with the drain cock is a stainless steel funnel resting in the 4 in. glass drain pipe. The idea in providing the funnel at that time was to avoid connecting the glass drain pipe tightly to the drain cock because of possible damage to the joint through vibration of the etching machine. The glass drain pipe which runs from several etching machines on the fifth floor to the iron sewer pipe below has been in use a number of years without deterioration. We learned, however, that one photoengraving company, for instance, has used Pyrex drain pipe for more than 12 years without replacement of any of the pipe units for gaskets.

A Rochester (N.Y.) photoengraving company, upon moving recently to a new plant, and in addition to the new equipment purchased at that time, in-

(Continued on Page 91)

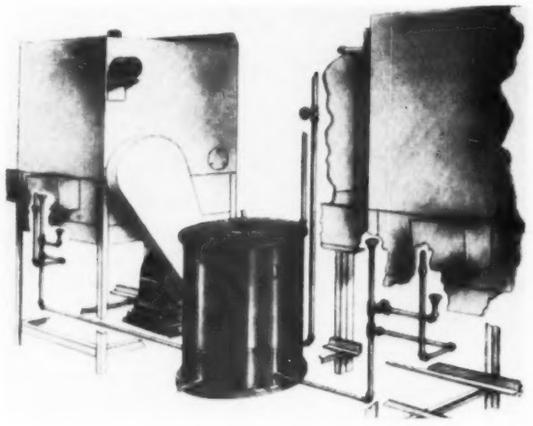


Fig. 1.—In this drawing is shown the Chemco acid neutralizer equipment connected to two photoengraving etching machines. Tank is 28¼ in. high and 26 in. diam. From 10 lbs. to 15 lbs. limestone used to charge the tank.

A PORTFOLIO

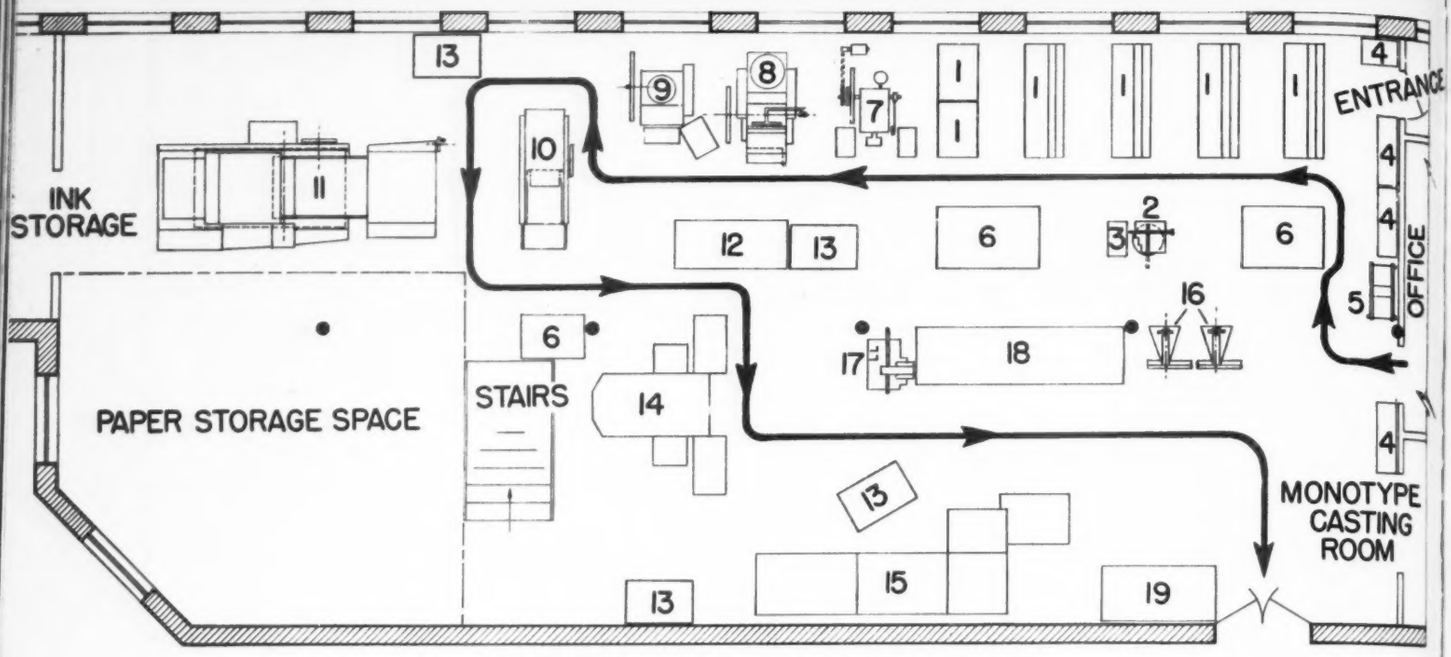
Plant Equipment Layouts in Relation to Workflow

By A. C. ARNESEN*
*Engineering Dept., American Type Founders, Inc.

IN MOST instances, proper workflow in the printing plant is achieved by following one basic and long established practice. This involves location of equipment so that closely related operations may be performed near each other. Without this confinement (which has no bearing on space limitations) the worker, whether he be makeup man, pressman or other, will expend a great amount of time and energy moving from one location to another. It means, too, that materials movement will become the acute problem which printing plant executives are continually trying to avoid. Need it be said then, that excessive movement of individuals and/or materials results in production loss and is the basis for the study and improvement of equipment layout in printing plants?

Investigation into well arranged existing plants frequently provides many executives with the key to proper placement of equipment. Included in this portfolio are floor plan layouts of five commercial printing plants of varying sizes. These plants represent a cross-section of firms utilizing a variety of methods and performing different operations.

This presentation is not intended as either a conclusion or endorsement that any of the arrangements will form the most suited layout for a company of the same comparative size or with identical equipment. Many other variables must also be given consideration, such as shape of the building, amount of floor area available, location of windows and doors, space for specialty operations, etc. A plant executive seeking ideas for his own company may follow part of the composing room layout from one plant, and then the pressroom from another. He may also pick up a suggestion or two about the bindery from still a third. A study of workflow in your own plant might prove to be profitable production thinking and eliminate some of the existing kinks.



A Well Planned Small Letterpress Shop

Composing Room

1.—Type cabinets with work tops
2.—Saw trimmer
3.—Materials cabinet
4.—Galley cabinets
5.—Proof press
6.—Imposing tables

Pressroom

7.—Colts Armory 13 in. by 19 in. platen press
8.—Kluge 12 in. by 18 in. platen press
9.—Golding 15 in. by 21 in. platen press
10.—ATF No. 6 Little Giant press
11.—No. 3 Kelly press
12.—Pressroom table

Bindery

13.—Stock trucks
14.—Lawson paper cutter
15.—Baum folder
16.—Stitchers
17.—Paper drill
18.—Bindery table
19.—Shipping table

The small one-process printing plant is still very much in evidence in many parts of the country but few achieve the straight flow of work through the shop as does this Massachusetts letterpress printer. The well-equipped plant is capable of handling a variety of work with its Monotype typesetting equipment, range of presses and essential bindery machines.

Three sizes of platen presses, as well as a small and large cylinder press, provide the pressroom with equipment for printing jobs of many descriptions. Even the bindery is, in most part, self-sustaining. An automatic paper cutter and folding machine are included as part of the equipment.

Executives of this company were wise in allocating sufficient space for ink and paper storage. Too frequently in small plants not enough area is devoted for this purpose which consequently causes congestion in the aisles. Aisles vary from 2½ ft. to 7 ft. in width. The location of all production departments on one floor is especially essential for the small printing firm where compactness increases versatility.

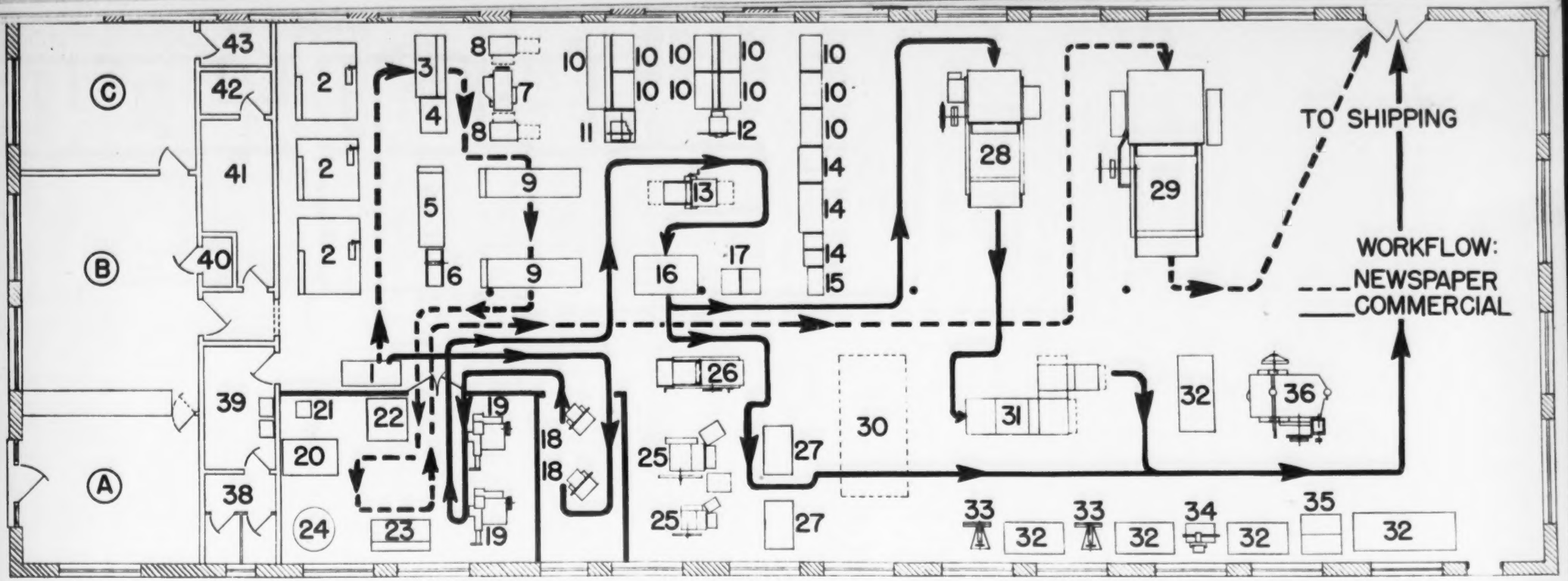
Installation of a Steel-Rock floor is shown in this illustration. At left is the steel grid in place ready for application of the filler. The completed surface can be seen at the right.

Steel Reinforced Flooring

Steel-Rock, a heavy duty flooring, is designed to combat floor destruction caused by heavy rolling traffic, according to United Laboratories, Inc. The flooring combines heavy steel mesh with a special filler for surfacing floors subjected to hard abuse. Sponsor claims it withstands impact as well as heavy loads and remains maintenance free for a number of years.

The resilient filler used in the grid compacts to meet the level of the steel ribs thereby permitting truck wheels to ride on steel with little noise or danger of slipperiness. Steel-Rock may be applied over new or old surfaces of wood or concrete, inside or outside, at a depth varying from ⅜ in. to 1 in., depending upon job requirements.

It is reported that the filler bonds well to both floor and grid. Steel-Rock grid is available with square or hexagonal openings in roll or sheet form. Additional details may be obtained by mentioning PEE No. 82 in your request.



Combining Commercial and Newspaper Operations Under One Roof

Composing Room

1.—Foreman's desk
2.—Composing machines
3.—Machinist's work bench
4.—Magazine rack
5.—Dumping and correcting bank
6.—Galley proof press
7.—Ludlow
8.—Ludlow matrix cabinets
9.—Newspaper makeup tables
10.—Type cabinets
11.—Saw-trimmer
12.—Miterer
13.—Proof press
14.—Galley cabinets
15.—Broach cabinet
16.—Imposing table
17.—Chase racks
18.—Monotype keyboards
19.—Monotype casters

Stereotype Dept.

20.—Casting box
21.—Router
22.—Stereotype saw
23.—Work table
24.—Metal remelting furnace

Pressroom

25.—Platen presses
26.—ATF Little Giant press
27.—Work tables
28.—Job cylinder press
29.—Newspaper cylinder press
30.—Proposed press

Bindery

31.—Folder
32.—Bindery tables
33.—Stitchers
34.—Paper drill
35.—Perforator
36.—Paper cutter

Miscellaneous

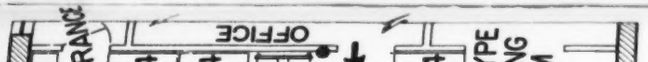
38.—Men's toilet
39.—Locker room
40.—Stationery closet
41.—Rest room
42.—Women's toilet
43.—Private toilet
A.—Lobby
B.—Business office
C.—Office

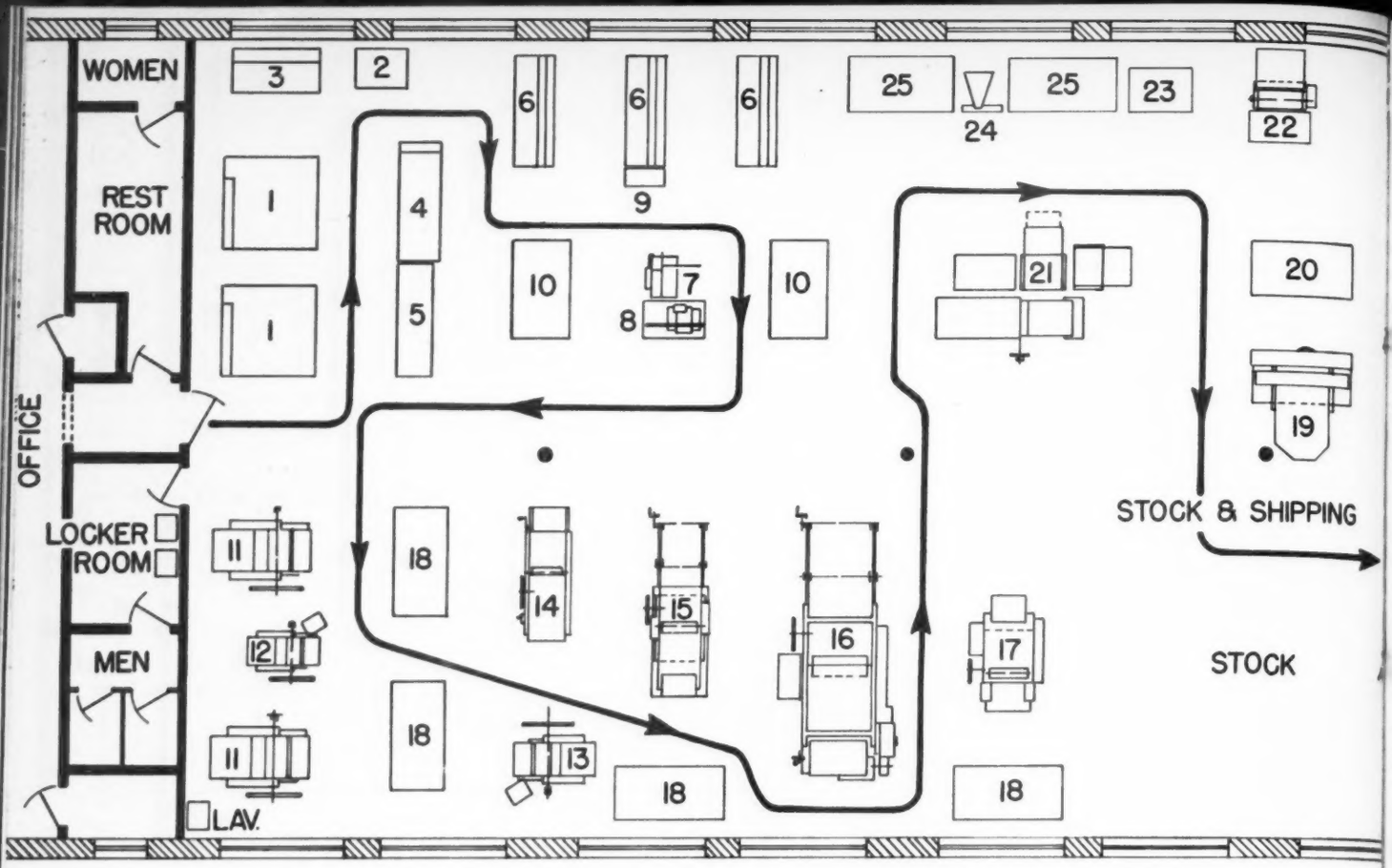
The broken and unbroken workflow lines in this New Hampshire printing plant need not be as frightening as they might first appear. Perhaps the uninitiated will remark: "Whatta mess!" Of course, this is all to the contrary, for this compact building houses a plant in which two separate and distinct printing operations can be performed. It is also well organized and equipped.

The production of a weekly newspaper as well as a variety of commercial operations under one roof can become a complex business unless it is carefully planned. By following the dash workflow lines, denoting the route of newspaper operations, from the superintendent's desk to the shipping point, you will notice that at no place does it conflict with any of the commercial workflow lines.

Of interest also is the use of slug and Monotype composition in the composing room. The Ludlow equipment is located near the line-casting machines to provide display lines and heads for newspaper makeup. The Monotype keyboards and casters have been located in two adjoining rooms to achieve quietness for the operators and to isolate noise from the casting machines.

The solid lines indicate the commercial workflow. Note how the flow is separated after leaving the imposing table (*16*) at the commercial end of the composing room. The work is directed to the large job cylinder press (*28*) and then is routed across the room to the folding machine (*31*). The other flow line indicates that the work travels from the imposing table (*16*) to the smaller presses (*25* and *26*) and then into the bindery. Both of these workflow lines then join in the bindery department for the final operations.





Combination Letterpress-Offset Plants are Popular

Composing Room

1.—Linotype machines
2.—Linotype magazine rack
3.—Machinist's work bench
4.—Dumping and correcting table
5.—Challenge proof press
6.—Type cabinets
7.—Saw-trimmer
8.—Vertical miterer
9.—Furniture cabinet
10.—Imposing tables

Pressroom

11.—Kluge 12 in. by 18 in. presses
12.—Chandler & Price 8 in. by 12 in. press
13.—Chandler & Price 10 in. by 15 in. press
14.—ATF No. 6 Little Giant press
15.—Style B Kelly press
16.—No. 2 Kelly press
17.—ATF Chief 17 in. by 22 in. offset press
18.—Press tables

Bindery

19.—Challenge paper cutter
20.—Paper cutter table
21.—Cleveland folder
22.—Rotary perforator
23.—Paper drill
24.—Stitcher
25.—Bindery tables

The installation of at least one offset press is becoming a familiar occurrence in what formerly was an all-letterpress printing plant. These dual-process companies now account for a large percentage of the printing plants in the United States. The floor plan layout of this Ohio combination shop is typical of so many others encountered.

Predominantly letterpress in operation, it has had its operational range increased by the addition of a 17 in. by 22 in. ATF Chief Offset Press. You will note there are no platemaking facilities in this plant. In the case of the one-press plant it is customary to purchase plates from a trade platemaker. Many firms feel that installing platemaking equipment is only economically sound when it can service several offset presses. This usually holds true unless the plant is geographically located so that plate service is inconvenient on account of distance and lengthy waiting periods. There is also the problem of obtaining skilled help to man such a department.

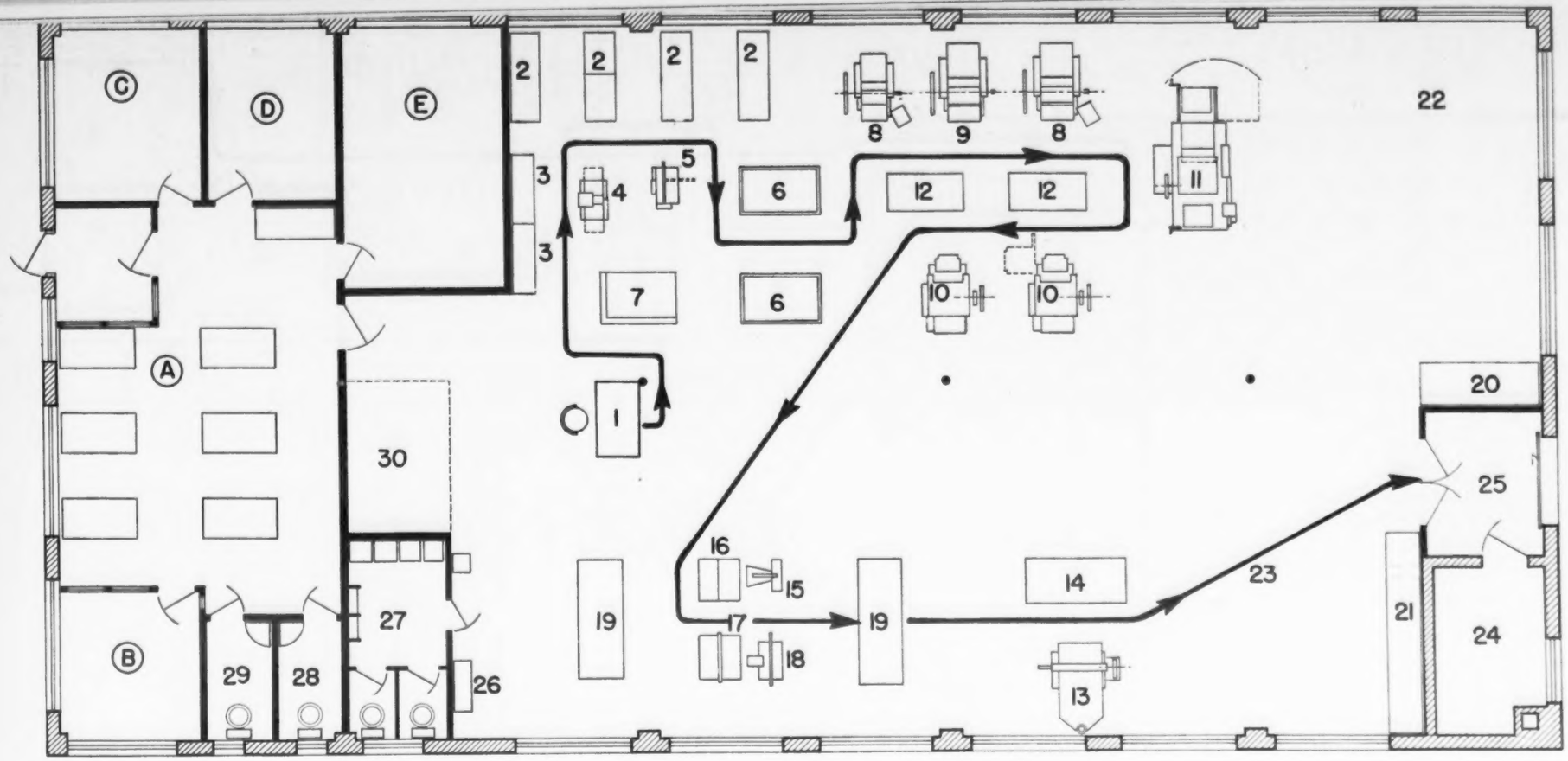
This plant operates from Linotype composition. One advantage in having typesetting facilities available is that reproduction proofs may be pulled on the Challenge proof press for offset platemaking purposes. It is also equipped with several automatic letterpresses, the largest being the No. 2 Kelly press. Here, also, a Cleveland folding machine, Challenge paper cutter and other machines make up a well equipped bindery department.

Steel Floor Plates

Armco Stelcon Anchor Steel Plates are designed for providing durable floor protection for entire floors or hard-wear areas such as trucking aisles and loading platforms. The plates are described in a two-color, four page bulletin released by Armco Drainage & Metal Products, Inc. In the bulletin are shown several illustrations of this type of flooring installed in industrial concerns.

Stelcon Anchor Plates are $1\frac{3}{16}$ in. square and made from 11 ga. (0.125 in.) Armco steel. Each plate has 53 projections to anchor it securely when embedded in the concrete base. Sponsor points out that this provides the solid foundation of a concrete floor plus the advantage of a damage-resistant steel surface. The projections are bent in eight directions to prevent movement of the plate. The plates are also provided with $\frac{1}{4}$ in. by 1 in. openings in the surface to prevent the plate from cupping out of the concrete base.

In addition, the flooring material is available in half-plates. They are used to even up edges where full plates are laid with staggered joints. It is claimed the plates resist the combined effect of high temperatures and severe wear, are safe under practically all conditions and are easy to clean. A copy of this bulletin, as well as more details, may be obtained by mentioning PEE No. 81 in your request.



Art Department Incorporated in Medium Size Plant

Composing Room

1. —Foreman's desk
2. —Type cabinet with work tops
3. —Galley cabinets
4. —Proof press
5. —Saw trimmer
6. —Imposing tables
7. —Register table

Pressroom

8. —Platen presses
9. —Kluge Automatic press
10. —Miehle Vertical presses
11. —Style C Kelly press
12. —Stock tables

Bindery

13. —Power paper cutter
14. —Paper cutter table
15. —Stitcher
16. —Paper punch
17. —Perforator
18. —Paper drill
19. —Bindery table

20. —Shipping table
21. —Shelving

Miscellaneous

22. —Space for additional presses
23. —Space for bulk paper
24. —Heating plant
25. —Shipping and receiving entrance
26. —Sink
27. —Men's locker room
28. —Women's rest room
29. —Private wash room
30. —Clothes locker space

Offices

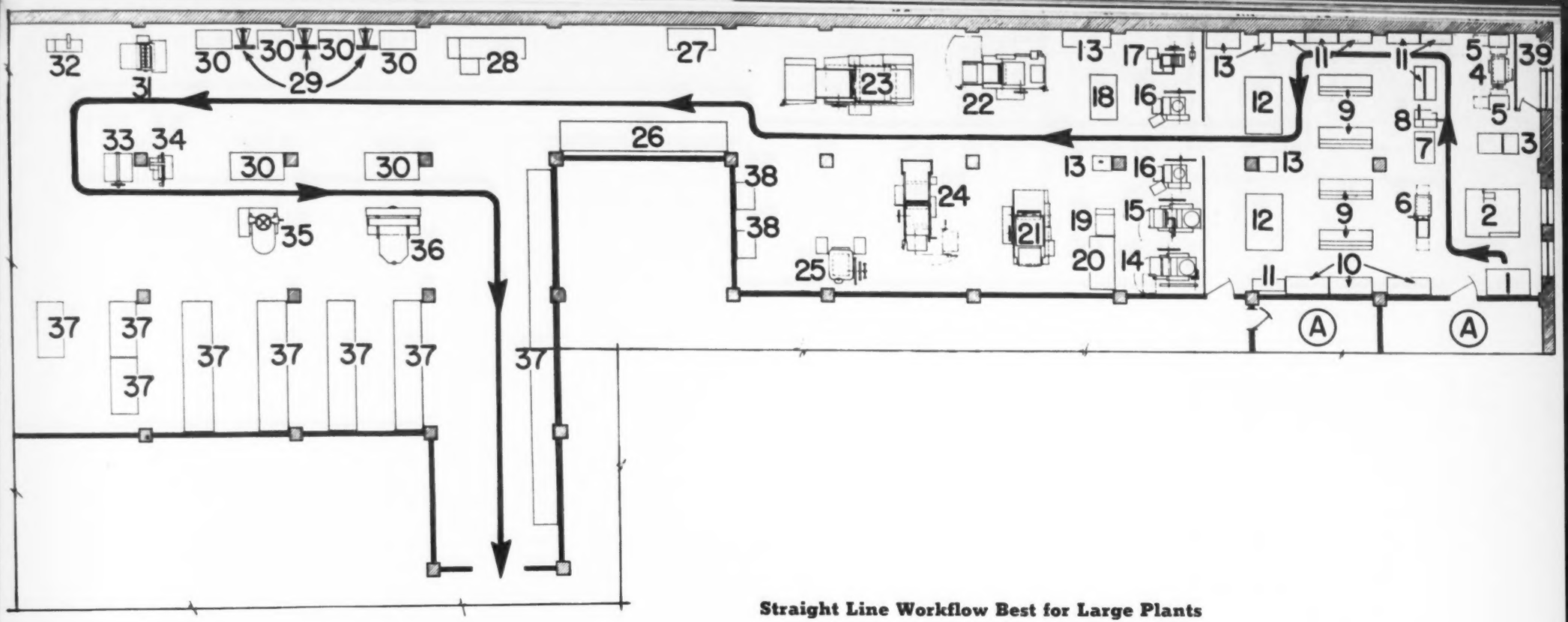
A. —Business office
B. —Office manager
C. —Private office
D. —Conference room
E. —Art department

A study of a plant's equipment frequently reveals the type of work produced. Here is a New Jersey printing firm's floor plan arrangement, in which an unusual amount of space is devoted to an art department. No type composing equipment is employed but an otherwise moderately equipped composing room is maintained.

Judging from the press sizes and the bindery equipment, it is likely that this company courts long press runs. Considering again the large art department, it would be logical to assume that this company specializes in the production of advertising pieces where the creation of art work is frequently necessary. It may even be that foundry type is used in the composing room to provide the range of display faces used in work of this nature.

The Kelly and Miehle Vertical presses can be used to print the color needed for short run jobs. Quality is evidenced further when you note that a lineup and register table forms part of the composing room equipment.

The layout of the plant is considered good. It shows also that the company management has an eye to the future for room has been left to add more press units. The narrowest aisles provide at least 3 ft. for movement. The plant superintendent is centrally located for convenient access to all departments.



Straight Line Workflow Best for Large Plants

Composing Room

1. —Foreman's desk
2. —Composing machine
3. —Magazine rack
4. —Ludlow
5. —Ludlow matrix cabinets
6. —Challenge proof press
7. —Materials storage cabinet
8. —Saw trimmer
9. —Type cabinets
10. —Cut storage cabinets
11. —Galley cabinets
12. —Imposing tables
13. —Chase racks

Pressroom

14. —Chandler & Price Automatic 12 in. by 18 in. platen press
15. —Kluge 12 in. by 18 in. platen press
16. —Golding 12 in. by 18 in. platen presses
17. —Heidelberg 10 in. by 15 in. platen press
18. —Stock table
19. —Storage cabinet
20. —Drying rack and stock table
21. —No. 1 Kelly press
22. —Style C Kelly press
23. —No. 3 Kelly press
24. —Miller cylinder press
25. —Universal press

Bindery

26. —Inspection table
27. —Addressograph mailing machine
28. —Folder
29. —Stitcher
30. —Bindery tables
31. —Rotary perforator
32. —Numbering machine
33. —Perforator
34. —Paper drill
35. —Oswego paper cutter
36. —Challenge paper cutter
37. —Stock shelving
38. —Sinks
39. —Toilet

A. —Offices

Where printing production operations involve a large amount of equipment it is considered advantageous to move the work in the straightest continuous line through the building. This is demonstrated in the above floor plan of a large company located in Massachusetts where jobs begin with the composing room foreman at one end of the plant and progressively move to shipping at the other end. The straight flow causes less backtracking, congestion and confusion because the work is always moving toward the rear of the plant.

The odd shape of the building here provides the location of an inspection table at the narrow neck between the pressroom and bindery. Here the press sheets are examined for any defects before being processed in the bindery and shipment to the customer.

In the composing room, the slug composition passes from the machines to the makeup and imposing tables in relatively easy fashion. The pressroom is equipped with a total of ten automatic platen and cylinder presses for handling a wide range of work.

In the bindery, note the large amount of shelving devoted to storage of paper stock. This method of storing paper is frequently resorted to by some companies where floor space for this purpose is at a premium or perhaps a paper supply house is not located nearby.

Photon—

What it is and how it is operated told in simplified form—Higonnet-Moyroud machine produces justified type matter on film for making printing plates

By SIDNEY JAMES PAINE

AFTER a great deal of research and experimental work, the Higonnet-Moyroud, or Photon photographic type composing machine has now been developed to the stage where Photon, Inc. manufacturing licensee of The Graphic Arts Research Foundation has 35 machines in production. Through Pres. William W. Garth, jr., the Graphic Arts Research Foundation, Inc., with the collaboration of two French communication engineers (Inventors Rene A. Higonnet and Louis Moyroud) took over the developmental work necessary to produce an automatic phototypesetting machine.

In the preparation of this article no attempt has been made to write in engineering terms. The general subject of phototypesetting is a glamorous one, so we have tried to get to you an interesting story.

It is intended that operation of the machine shall be as nearly automatic as possible. The operator manipulates the keyboard keys and the machine does the rest in furnishing the exposed film which is then ready for development. Suitable controls operated through various special key buttons cause the machine to perform automatically the many varied and complex operations involved in type composition.

In the Photon machine, mechanics, physics, electricity and an automatic computing device are employed for producing photographic composition. The machine itself consists of three major components: (1) Standard Underwood electric typewriter, (2) Telephone relay system and (3) Photographing unit. It isn't quite that simple an arrangement but will be sufficient to explain the major components of the equipment. These work automatically, except, of course, for actual manipulation of the typewriter keys by the operator. It should be stated at the outset that a regular copy of the matter typed by the operator is also furnished on paper just as is the case with direct typing on any typewriter. Thus the operator can see what has been typed as the work proceeds.

Machine Functions Explained Superficially

Functions of the electrical system may be described superficially as follows: As the operator depresses a key, an impulse is sent to what is called a memory or storage system. The operator proceeds with typing a line until it is within reasonable justification range of the predetermined measure. A memory unit keeps track of the amount of space required for type character including the word spaces in incremental fashion. It is not necessary for the operator to do this. When the type line has been composed so that it is within reasonable range of being "full", the operator depresses a line release key. Now, in connection with a computer, the memory unit and computer automatically add whatever increased width is necessary to the spaces between the words to fill out the line exactly. Next in turn, the decode and control unit automatically operates the photographic unit which exposes the letter characters and spaces one by one on the sensitized film.

The standard electric typewriter keyboard on the machine can be operated by any qualified typist. The typewriter keys, plus shift, allow 88 character selections from each alphabet. Electric type-

Fig. 1—*View of production model of the Photon (Higonnet-Moyruod) phototypesetting machine. Finished product is photographic negative or positive film bearing lines of type of the required size spaced for width and depth to the required dimensions. The machine employs electrical and mechanical principles. Nestled within the 55 in. by 49 in. cabinet is the complex circuitry required to perform automatically the many complicated operations involved in phototypesetting.*

Fig. 2—*Center section of keyboard panel carrying typewriter main keyboard on which operator does the typing. This is a standard electric typewriter keyboard with the exception of the addition of the upper row of key controls.*

writer keyboard speed has been maintained.

Auxiliary controls provide for selection of (1) Family or style of type (a single matrix disc has capacity for 16 complete alphabets. The disc measures 8 in. diam.); (2) Point size to be employed (ranging from 5 pt. to 36 pt.); (3) Point set or type body width, independent of size; (4) Desired line width (up to 7 in.); and (5) Leading or space between lines (from ½ pt. up.).

Other keys enable (1) Correction of individual character errors; (2) Elimination of an entire line; (3) Automatic centering; (4) Insertion of fixed spaces of varying widths; (5) Automatic right or left quadding; (6) Production of justified or non-justified lines; (7) Automatic insertion of leader dots; (8) Composition of horizontal and vertical rules from the keyboard.

The product of the machine is a photographic positive or negative film bearing lines of type. Each line is automatically justified to its pre-set length from a single typing. This is done entirely by the machine and no computation by the operator is necessary.

In an interchangeable character matrix disk provision is made for 16 complete alphabets of type. These may be different families or styles or special characters or symbols. A completely filled disk contains approximately 1400 individual characters.

Provision is made to project each character into 12 different sizes within the range from 5 pt. to 36 pt. type.

The availability of 16 alphabets in 12 sizes provides mixer flexibility with 192 different sizes of alphabets.

Matrix disks may be interchanged in less than a minute.

Every family, size or style available at the operator's keyboard may be placed in line being composed. Type styles can be mixed and/or centered within a line. Point sizes, point sets and families also may be mixed without interfering with justification or base alignment of the characters.

The author's interview with Mr. Garth follows, in which salient features are discussed.

Photographic Unit Capacity

Among the first questions occurring to nearly everybody connected with the Graphic Arts is one related to reproduction or "typesetting" speed. Mr. Garth was asked about the maximum practicable speed of the photographing or reproducing unit which is actuated automatically by impulses from the relay system. Garth said:

"The maximum speed of the Photon machine is far greater than that at which anyone can keyboard. The first production units roughly are operable at 7 or 8 characters per sec. The Foundation has completed a variable escapement for the "reproducer" which moves the photographic elements up to 12 characters per sec. We really don't know how fast it will work. At some point it would become desirable to tape operate for transmission purposes or to have one photographic unit handle the output of perhaps one or more keyboard units.

Maintenance Routine and Replaceable Units

The question of maintenance routine does occur to every printing plant execu-

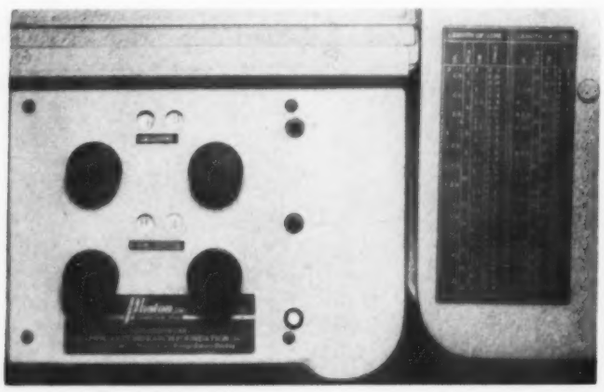


Fig. 3—*Above is left-hand section of keyboard panel. Here are shown the leading and line width control knobs, together with line width conversion table.*

Fig. 4—*At right is view of the right section of the keyboard panel. The various groups of keybuttons function as follows: The section showing the plain buttons are used to select a particular type face from among the 16 faces listed and which are carried in matrix form on the type wheel (Fig. 8). Thus, in the type layout shown here, if Scotch Roman is indicated on the copy, the operator depresses the right-hand button in the sixth row from the top of the keyboard section. Point size of type is determined by depressing one of the numbered buttons in the center section. The two rows of buttons at the right enable the operator to obtain various effects in composition, such as normal spacing, automatic centering, flush right, loose and tight composition, etc.*

tive. Someone once made the remark that it would take some kind of a super engineer to be able to operate and maintain the Photon. Such a person, said our informant, must possess working knowledge of mechanics, physics, electricity and mathematics.

In our interview, Garth explained: The Photon *is* a complicated mechanism. But it is not intended that people having to do with its operation and maintenance should have what might be termed 'higher education'. Nor is it inferred that any 'dumbell' can operate and maintain the Photon."

Garth purused his explanation by stating: "The Photon is divided into distinct component parts or units. Each of the units is arranged so that if trouble occurs in any one of them, the defective unit can be removed and a new one slid into place and connected quickly without the use of screwdrivers or pliers, after which the operator can proceed with the composition at hand. Meanwhile, the defective unit can be returned to the factory for repair."

"Another thought is that the machine which is subdivided into individual units is constructed with an eye to long and uninterrupted service. In a complicated device such as a phototypesetting machine, there is always a possibility of something going awry but the possibility is remote, because the equipment is manufactured with great care."

Typographic and Authors' Corrections

With respect to ever present typographic and authors' corrections, Garth said the Foundation currently is working on several types of correction equipment to suit the many various correction problems. No details with respect to construction and operation of this equipment have been released.

Two Matrix Pattern Sets Required

The type point size range of the Photon equipment ranges from 5 pt. to 36 pt. in line widths up to 42 picas. The range of point sizes may necessitate furnishing two or more matrix fonts or letter character image fonts where extreme range of composition sizes is required. Because these characters are enlarged optically from smaller patterns there sometimes is a tendency to distort the character. Thus, one font might be supplied for type sizes from 12 pt. down to the smallest size. Sizes from 14 pt. up could be reproduced from the other matrix font.

Two Memory Units

"There are two memory units in the machine. The first unit is a nine-pin mechanical storage or memory unit, which is located back of the typewriter unit. This unit contains nine pins in each vertical row. As a typewriter key is struck, a code is impressed on the vertical row of pins representing the particular character selected and also its proportional space requirement.

The second memory unit is in the electrical circuits. This memory device accumulates the absolute space requirements of each character. I use the word "absolute" as distinguished from "proportional" because the absolute space requirement is the proportional space requirement times the set width being employed. This latter memory unit accumulates the individual character space requirements.

"When the point is reached where the typed line can be justified at a predetermined maximum interword space, a chime sounds. If desired, the operator can still continue to type until a buzzer sounds, which indicates that the line is almost full to the preset measure. If the operator types too far beyond this point and oversets the line by one character width, the buzzer ceases to sound, and the keyboard locks. The operator then pushes an automatic backspace key which erases the character selection and width data from the two memory units. The back spacing is continued until a convenient place to end the line is reached. After any corrections within the line have been made, the operator pushes a character return key on the typewriter which causes the justification calculation to be made automatically. The photographic cycle on the film now commences, also automatically.

"I might add, too, that the pin memory unit behind the keyboard typing unit also picks up all of the operational codes; for instance, if you change family or style, size, or setwidth.

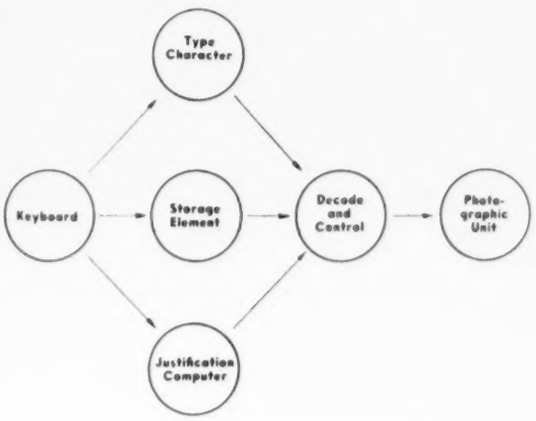


Fig. 5 — *Flow diagram of Higonnet - Moyroud photo type composing machine.*

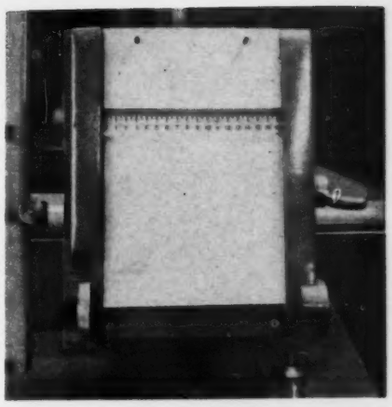


Fig. 6—*The page makeup indicator, as will be seen in Fig. 1, is mounted at the right of the operator's regular copy holder. Layout containing blocks of copy, cuts, etc. is placed in the indicator. As the film is leaded up in the film magazine by the automatic leading dial or by the leading repeat key, the plastic rule containing length of line markings moves down the layout simultaneously and the same distance. If proper leading is not indicated on the layout, the operator can lead the film manually by pushing the button at the base of the page indicator. This device enables the operator to compose and make up a page at the same time.*

Two Line Justification Systems

"There are two justification systems in the Photon. The first of these is the normal interword justification and the second is interword or intercharacter justification. In the latter, a maximum interword space is preset. If this maximum space is not sufficient to justify the line, the machine automatically letterspaces the line to produce a justified result.

Character or Line Kills

"Erasures (kills) are taken care of by two means. One key is for individual character corrections. Here the typewriter platen is moved back to the faulty character, and the correction key is depressed, the correction key erases both the individual character selection code in the mechanical storage unit and width data of the incorrect character from the electrical memory unit. If there are too many characters involved, depressing another key will kill the entire line."

A question was interjected by the interviewer, as follows: Supposing you struck the letter *i* and it should have been *m*, does the variance mean very much in going back and striking out the *i*?

Garth replied: "It makes no difference. We are using an 18 unit spacing system in the present production machines. Thus, a capital *M* is an 18 unit character. The lower case *i* is a 5 unit character."

Garth continued: "The correction key acting on an *i* code would substract 5 units because it senses the code already in storage. When you strike the capital *M*, you insert 18 units, thus taking care of the requirements of the *i* and *M*.

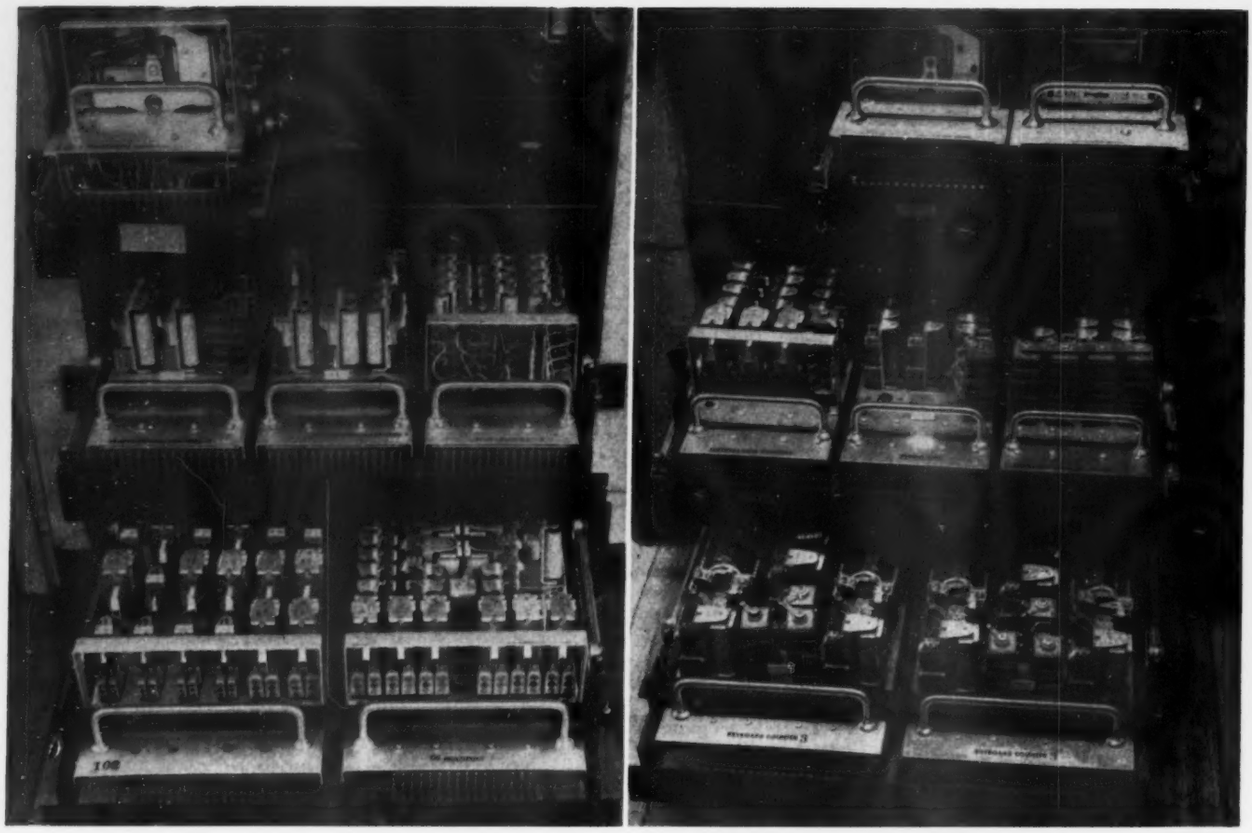


Fig. 7—*The electrical circuits in the Higonnet-Moyroud (Photon) phototypesetting machine are unitized. It is the plan of the designers that any component unit may be made accessible for inspection, repair or replacement quickly. Garth explained, however, that the liability of anything going wrong with these equipments is remote. Each group of units is mounted on a tray with cover. The tray rides on ball bearing slides. Plug strip electrical connections are employed. Any unit may be removed and replaced and properly connected with the hands without the use of tools. In contrast to the three to five thousand relays used in making a local dial phone call, about 30 are used to transmit single character information from keyboard to film. At left are shown (top) the increment control; (center) transcription controls and adding translator: (bottom) two multiplier units. In the right-hand section of this Fig. 7 are shown: (top) correction unit at left and automatic accumulator at right; (center) from left to right are justification control, typing unit and auxiliary control relays; (bottom row) keyboard counters.*

Keyboard Controls

"It might be helpful to take a look at the keyboard layout (Figs. 2, 3, and 4) because an understanding of the controls will give a picture of all the permutations and combinations possible with this machine.

Left Panel

"On the left hand panel there are two sets of control knobs. One set selects the amount of leading to be put automatically between lines. The leading can be anything from 0 to 49 points by half-point increments. Also, there is a leading repeat key which will repeat the preselected leading value. The other set of knobs presets the desired length of line. Any measure up to 42 picas (7 in.) can be selected. The line length and the leading are controlled or preset by knobs because these measures do not change within a given line. Everything that may be changed within a given line is handled by key control or pushbutton operation.

Main Keyboard

"On the typewriter keyboard itself, the top row of keys is arranged as follows: Individual character error key, correction key, about which we just talked, next to it is a multiple composition error key which is used where there are different families, styles or sizes with different set-widths employed in a given line; next is the kill line key which completely eliminates the line; then a key to produce unjustified lines; then we have a key for multiple justification which is used where several justified columns within the total line measure are to be produced. Used with the multiple justification key is a 0 leading control which prevents multiple columns from being leaded down; this keeps them all in the same line. Next is the leading repeat key which merely repeats the amount of leading previously selected on the leading controls. Also there are three fixed space keys for space that does not justify; these three keys select 1, 2, or 4 units of whatever value fixed space is needed to kill the line. There is an unusual key which inserts space proportional to the actual set-width being employed.

Automatic Leader Insertion

"The final key, the space expanding key, automatically inserts leaders (dots) to fill the measure commencing at the point where that key is struck. This would be used, for instance, in telephone directory composition where the name and address is keyboarded. The space expanding key is struck once, then the exchange and telephone are keyboarded. Of course, the operator doesn't know how many leader dots are necessary. The Photon machine doesn't know either until the exchange and telephone number have been keyboarded. The space left in the line is filled with leaders in the photographing cycle to fill out the measure automatically.

Right Keyboard Panel

"On the right hand panel (Fig. 4) there is a series of pushbuttons which are grouped into four double vertical rows. The first double row consists of 16 keys which permit selection of any of the 16 families or styles of type on a given matrix disc (Fig. 8). A disc may be changed in approx. 1 min. time.

"There is a 16-key identification panel which goes with each disc. When a disc is changed, the panel indicating the type faces on the disc is inserted in a holder alongside the double rows of keys. Next to the 16 type face keys are the 12 keys for point size which correspond to the 12 lenses in the revolving lens turret of the

machine. These enable selection of any point size of type from 5 pt. up to 36 pt.

"Now the selection of a given point size of type face normally and automatically also carries with it selection of the proper setwidth used with that point size. However, if the operator wishes to set, say, an 11 pt. size on a 10 pt. setwidth, the operator then uses the next bank of 16 keys which controls setwidth. In this case, the keybutton carrying the figure 10 would be depressed. This will be the means for composing the 11 pt. type face on a 10 pt. setwidth. The setwidths run from 0 to 15. In the fourth double row of keys, there is a double setwidth control which enables the doubling of any setwidth value. These setwidth keys are used when it is desired to set a character in other than its normal setwidth. A 0 setwidth can be set. Of course, if that control is kept down, one character will be superimposed upon another. We once thought zero setwidth academic. But a youngster looked at it and said: 'This is wonderful' 'Why,' we said, 'it's only academic, so what can we use it for?' He said: 'Suppose you wanted to set S A sub 1 squared. You set the A on its normal setwidth. The inferior on a 0 setwidth, and the superior on its normal setwidth—which means the inferior and superior characters would line up exactly.' There are a number of tricks of that sort for which it can be used.

"The last double row of vertically arranged buttons at the right (Fig. 4) represents further composition controls. The first two are for either normal operation or automatic centering. If automatic centering is being done the automatic centering key is depressed.

"The next two buttons below are for normal operation or automatic leaders. If telephone directory work is being done, the automatic leader dot button will be down all the time. Third from the top is a normal or flush right button, which merely means that the lines produced are flush on the right-hand side. *Normal* means the line is flush on the left-hand side. Fifth from the top are the normal and double setwidth buttons for doubling the setwidth values. At the left of this button is the normal photographing button, which means the photographic reproducing system is photographing each character. Fourth from the top is a non-photographing button which means that if the button is down, space is allowed on the film for the characters selected in whatever setwidth has been selected, but not being photographed. This is handy in grocery advertisement composition where a row of large type is followed by two or more rows of small type beginning at the same point in each line. For the first line the big type is composed with the non-photo button depressed; then the operator goes back to the photo button to compose the first line of small type. The process is repeated until the last line of small type. The process is repeated until the last line of small type has been composed; then the big type is photographed, as well as the small type. The lines of small type will start at exactly the same point.

"Sixth down from the top are two buttons for different 'tightness' of composition," continued Garth. "One is loose composition, one is tight composition. Those buttons can be adjusted to any given plant's requirements.

"The next controls (seventh buttons down) are for the two different systems of justification. Normal justification divides the justifying space between the words themselves. This is the same system which is used by line-composing machines. In the second system of justification, the maximum space that you ever wish to appear between words is set. If that is not sufficient to justify the line, the remaining space is character spaced throughout the line automatically by the machine without operator intervention. This is a combination of inter-character and interword justification.

"The two lower controls or buttons are the master *On* and *Off* switch," concluded Garth in his explanation of the keyboard controls.

Fig. 8—*The glass type wheel or matrix disc bearing the type characters is 8 in. diam. and approx. 1/8 in. thick. The character bearing side of the disc is toward the film upon which the exposures are made. In operation of the machine a stroboscopic lamp passes light through the selected character on the disc into an optical system which in turn projects the light in the form of a type character on the sensitized film. The revolving of the matrix disc is continuous (8 rev. per sec.) but the type image is stopped on the film since the duration of the stroboscopic light is only of a few miscroseconds duration. (Eight characters can be photographed per second.)*

Matrix Disc

In answer to a question Garth said: "The matrix disc bears eight circles of type in negative character form. Each semi-circle contains an 88 character alphabet making 16 such alphabets on a single disc. Discs will be made available with the faces wanted by any particular user. The user won't have to buy a standard disc, for these might contain types which might never be used. There are roughly 88 times 16, or about 1400 individual characters per disc."

How would the Photon equipment work in a newspaper plant with Teletypesetter operation? we asked.

"Well", replied Mr. Garth, "the Photon is suitable for tape operation and we have given it a good deal of thought. However, we have not built the actual device for tape operation."

When asked about labor's attitude respecting technology in the industry with special reference to type composition, Garth said: "I'm no expert in the field of printing labor relations. The whole philosophy of the Foundation is to develop more productive equipment and the problem of how it is introduced is that of the individual user."

Would Rather Have Printing

Will this affect the loss of jobs? he was asked.

"Generally speaking", he said, "I don't see how it can mean that a lot of men will be put out of work. There are

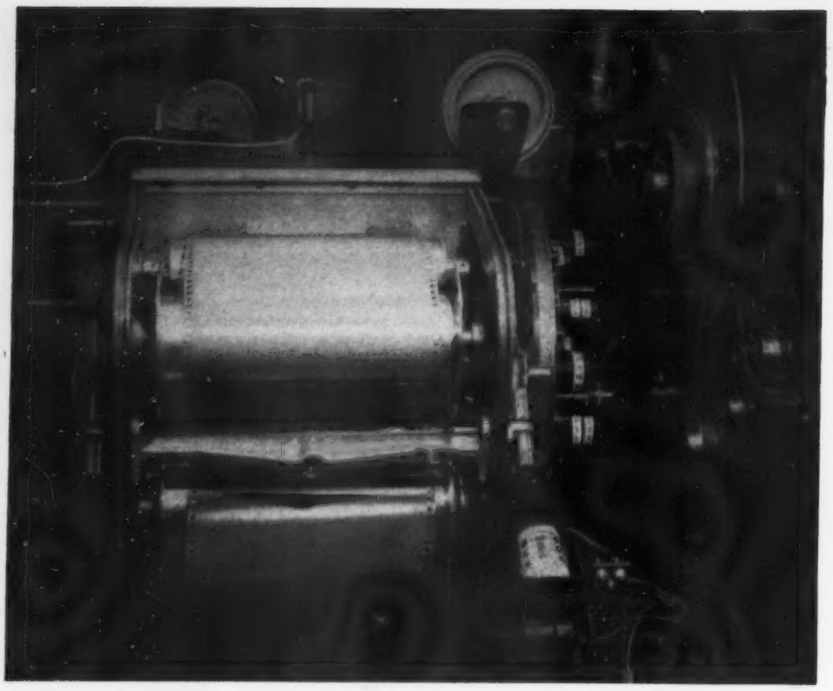


Fig. 9 — *Principal components of the Higonnet-Moyroud or Photon photographic type-composing machine. At right is the glass matrix character bearing disc shown in Fig. 8. Next to the left is the lens turret on which are mounted the 12 lenses employed in securing proper type sizes according to the impulses received from the sending apparatus. At left (with light-proof cover removed) is the interior of the sensitized film magazine.*

many cold process keyboards being used for reproduction purposes. Now, people would much rather have printing than something that is a poor substitute. So, if you can lower the cost sufficiently, it would bring that whole area of marginal reproduction into the printing field. Then there will be a lot more printing done than there is now."

Foreign Languages

Could a language publishing house use this machine? was asked next.

"We are starting some investigations for the use of this machine for complex languages, like Hebrew, Arabic and the Sanskrit-Root languages used in Indian countries down through Burma, etc., and ideographic languages like Chinese and Japanese."

The question arising in the mind of a production manager has to do with the making of duplicate plates for letterpress equipment in the publication and newspaper field. Please explain.

Rapid Engraving Processes

"Rapid engraving processes" continued Garth, "enabling the production of magnesium plates in approx. 7 min. are now proved. The quality of these letterpress plates is excellent and the cost will be reasonable. The original magnesium sheet is rolled to a tolerance of about 0.001 in. Test installations of the rapid engraving process are now being conducted."

Many production men have followed the development of Photon. While they believe it has possibilities in connection with offset, they can't get too worked up as to its future in the letterpress field. Please explain.

Garth replied: "Many in the printing industry expect a complete new system to result from research. Research can solve but one problem at a time. Photographic composition has stimulated research for translating photographic images into letterpress plates, one development being the magnesium plate. Flexible and rigid plastic plates are being investigated."

Production men say the place of the magnesium plate on the daily newspaper, according to their sense of values, is years and years away. Please explain.

Quickly Garth replied: "You should say: 'Some production men.' Rapid engraving will make photographic type composition applicable to newspaper production. Smaller papers can print from flexible magnesium plates."

Equipment Will Be Leased

It is our understanding that Photon machines will not be sold to publishers but will be installed on a royalty basis. Is this true?

"Photon machines will be leased," said Mr. Garth. Photon, Inc's arrangement contains a 'public interest clause' for reasonable price or rental. It becomes Photon's responsibility to keep machines up-to-date and to provide adequate service. Rental also reduces the capital investment required. At this time we plan to lease the machine for about $400 per month. The disc, inasmuch as it will be made to order in accordance with each customer's type face requirements, will be sold for about $500.

Ray Miller, sr.

An important figure in the next six months in activities concerning the Intl. Assoc. of Printing House Craftsmen will be the person whose responsibility it is to direct the planning for the annual convention. The 1954 Convention is to be held in Philadelphia on August 8, 9, 10 and 11 and Craftsmen from the City of Brotherly Love made an excellent choice in naming Ray Miller, sr., as General Convention Chairman.

RAY MILLER, Sr.

Although retired since 1942, Miller can look back upon a half century of service to the Graphic Arts industry which he first joined in 1893. Miller arrived in Philadelphia in 1903 and joined the J. B. Lippincott Co. as a pressman and shortly thereafter the Ketterlinus Lithographic Mfg. Co. He became associated with the Curtis Publishing Co. in 1906 and stayed with this well-known firm until his retirement. He worked his way up from a pressman through a succession of progressively more responsible pressroom executive positions.

The Philadelphian is also credited with organizing the city's Craftsmen's Club and with being a member of the committee which started the International in 1919 in the same city. He served the Philadelphia Club in every office except secretary until 1918 when he was elected president.

put Quietus on those noise gremlins

By GEORGE W. HANDY*

**President, Acoustical Materials Association*

MOST manufacturing departments of a printing plant are noisy. The bigger the operation the acuter the noise problem becomes.

The wonder under the circumstances is not that errors creep in and mechanical breakdowns occur but that the punishment of noise and vibration on men and machines doesn't take a heavier toll.

It isn't necessary to put up with such conditions. The harmful effects of excessive noise, and how to combat them, have been receiving an increasing amount of attention in American industry. Practical answers to the industrial sound control problem have emerged from the laboratories and factories of the acoustical materials manufacturers. It's not yet possible—and probably never will be—to make the presses and line and type composing machines run as quietly as your car. But a scientific application of the proper acoustical materials can make a busy printing plant quiet enough for comfort, health and efficiency—and eliminate needless costly errors and excessive mechanical wear and tear.

A Little Noise is Beneficial

As a matter of fact, a little background noise is considered beneficial and an aid to concentration. Too much silence is likely to produce an oppressed, shut-in feeling. Too much noise, however, is not merely distracting and annoying but makes for nervousness, irritability, fatigue, general debility and, as a corollary, slipshod workmanship—even when it is not loud enough to cause actual deafness. And one press—just one—makes up to four times the amount of racket than the human ear can accommodate over prolonged periods—say six months or so—without impairment of hearing. Several presses operating simultaneously can make enough din to cause temporary deafness in an hour or less.

The damage that vibration can do to precision machinery and equipment is obvious, and the manufacturers strive for ever smoother balance in the moving parts of heavy machinery in particular. But no matter how finely balanced these parts may be, as long as there is the impact of metal on metal (as in gears) there will be considerable noise and vibration, and the faster and heavier the machinery, the greater the noise and vibration will be.

Huge Sounding Board

The rumble of the presses thus can be heard and felt not only in the pressroom but throughout an unprotected plant—even in a large building. If the presses are anchored solidly to the concrete floor on which they rest, the floor and the building's walls can act as a huge sounding board to amplifying the vibrations. Vibration, as every pressman knows only too well, is the implacable for of best presswork.

First Attack

The first attack on the noise menace, therefore, is the use of resilient mountings for presses and other equipment that may be affected by vibration. These mountings will act as shock absorbers to eliminate or at least minimize the sounding-board action and with it the vibration damage.

But these rumbling low-frequency vibrations are really a lesser aspect of the noise problem. It is the higher-pitched noises such as are caused by metal cutting saws, that are most damaging to personnel and hence to the final product. High-pitched noise is unpleasant even in small doses.

How Noise is Intensified

Noises indoors are intensified by reflection or reverberation, and it is herein that the trouble lies. If you could set up a printing plant out-of-doors or under an open tent, you wouldn't be disturbed by the racket, for sound quickly dissipates itself out-of-doors. But indoors it can't escape. Traveling as it does in concentric waves in a space like the pressroom or the composing room it strikes against hard, smooth interior surfaces of steel concrete, masonry, plaster and bare uncurtained glass at a speed of 1160 ft. per sec.—and bounces and ricochets like a hail of lively rubber balls. Such surfaces reflect 98% or more of the sound that strikes them.

This reflected sound reverberates from ceiling to floor and back; from wall to wall, from walls to floor and ceiling, and so on until its energy dies out—which in a good sized room can take several sec-

View in section of pressroom, *Popular Mechanics*, Chicago. Ceiling has been covered with Acousti-Celotex. Installed by James L. Lyon Co.

MEASURING SOUND

SOUND is measured in decibels (db), a logarithmic scale used to express the intensity of the pressure of sound waves. Zero db represents the threshold of human hearing, the point at which the faintest sound becomes audible to the "average" ear. Each increase of 1 db represents the smallest increase in intensity that the ear can detect.

A quiet private office will show a noise level of about 30 db—which, however, is 1000 times the actual intensity of 0 db, since the progression is logarithmic. Ordinary conversation will register about 60 db, which in turn is 1000 times the intensity of 30 db.

onds. The reflected waves thus reinforce and prolong the original sound until what would have been tolerable out-of-doors becomes well-nigh insufferable.

Corrective Measures

The corrective measure for this condition is to face the ceiling or walls—or sometimes both—with sufficient sound-absorptive material to break up this chain of reverberation. Sometimes acoustical baffles or sound-locks of absorptive materials, suspended at strategic locations above very noisy machinery, will help prevent the noise from spreading by trapping sound waves before they reach walls or ceiling. With reverberation thus virtually eliminated, the noise level drops to approximately that of the original sound, which then becomes no more objectionable than if it were out-of-doors.

Various Types of Materials

What type of material and how much of it to use in any given case will be determined by the requirements of that particular job. A recent bulletin of the Acoustical Materials Association, which embraces the 14 leading manufacturers, lists and describes no less than 79 products. These are made of such diverse substances as wood and other vegetable fibers, cork granules, mineral granules, rock wool and glass wool. They come in several forms—perforated, slotted or fissured tiles, cork blocks, mineral wool pads faced with a drilled asbestos sheet or supported by a perforated metal pan. There are special prefabricated units and custom materials to be assembled by the applicator on the job.

Each of these products has its own special characteristics and each its special advantages for given installations. No one of them is best for all jobs. Depending upon type, they will absorb up to 85% of the sound that strikes them and the average for the whole group is about 70%.

Effectiveness is in Porosity

The secret of their effectiveness is porosity. When sound strikes these materials, instead of bouncing off it penetrates (through the perforations or fissures in the surface). As sound struggles through the porous maze of fibers inside it literally wears itself out. Only a fraction of the original sound survives to emerge.

The mechanical department treated with the proper absorptive material should be quiet enough for each machine to be heard as a unit—not simply as part of an overall din. The adjoining machine seems comparatively remote. In many cases, this means that the operator can listen for off-beat sounds in the mechanism that betoken minor mechanical troubles and correct them or have them corrected before they burgeon into breakdowns. It also means better concentration, for nobody is distracted by his own noise.

The proofroom sound-conditioned with absorption becomes a peaceful place quite enough for the proofreaders to hear themselves think and speak. And the same goes for other operations in the mechanical departments.

It's a Technical Subject

Noise reduction is a technical subject. Sound-conditioning is a job that calls for an expert if really good results are to be obtained. An acoustical engineer will measure the present noise level in your plant and on the basis of this and other acoustical characteristics determine the type of material and the method of installation required for effective sound control. Any member of the Acoustical Materials Association will provide such services without charge.

Demise of Obsolete Four Color Offset Press—Slowly but surely, there comes a time when any piece of printing production equipment must die a natural death. Obsolescence of a machine used in the Graphic Arts industry, of course, is governed by introduction of equipment of new design which will produce work of improved quality or at greater speed per hr. Design of the equipment may also permit flexibility in range of work which may be done. Thus, as surely as death and taxes, the old machine eventually will assist in strangling its management economically. To avoid this, be sure to watch your equipment obsolescence.

In this illustration, President Jack Osborne of Forbes Lithograph Co., Chelsea, Mass., is applying a 14 lb. sledge hammer to an obsolete four color offset press. In the wooden crates behind Mr. Osborne are contained parts for a new four color 52 in. by 76 in. Harris offset press which will replace the one being sent to the graveyard.

Starts Third Year

The Graphic Arts Employment Service has entered its third year of operation of placing key personnel in all branches of the Graphic Arts industry. For the occasion, the firm has made available an eight page pamphlet entitled *If You Are Job Hunting, Should You Use an Employment Agency?* The information is a reprint of an article which appeared in the Kiplinger magazine *Changing Times*. The agency also issues bulletins of key personnel available for distribution to Graphic Arts firms around the country. Only those classified in the industry as foreman or higher are considered. Manager of the service is (Miss) Helen M. Winters. Copies of the pamphlet reprint and other details may be obtained by request to Graphic Arts Employment Service, 307 E. Fourth St., Cincinnati 2, O.

Fig. 1.—There are four of these indicator panels, one each in the composing, stereotype, editorial and production departments of the Chicago *American*. Each of the panels measure 24 in. by 26 in. When the number of pages in an edition is known, the numbers on each of the panels is illuminated. As the completely madeup pages are sent in to the stereotype department, the lamp behind the corresponding page number is extinguished. Thus, any executive concerned with the progress of an edition consults the board and doesn't have to bother asking anyone for this information.

Page Makeup Indicator Panel For Editions

By MICHAEL PANTONE*

**President, Pantone Engineering & Mfg. Co., Chicago.*

THE Chicago *American* is engaged in an extensive equipment modernization program. Included was the recent installation of a page makeup indicator panel system with control equipment. The purpose of the indicator panel system is to enable anyone such as the editor, makeup editor, composing room superintendent, makeup foreman, production manager, stereotype superintendent, or anyone concerned to know at a glance how many pages of an edition have been sent from the composing room to the stereotype department. In this way, the information is at hand without the necessity of asking for it.

At the start of the makeup of an edition, a number of lamps corresponding to the number of pages in the edition are illuminated on each of four indicator panels. As each makeup page is moved into the stereotype department, the light corresponding to the page is turned off. Thus each executive in the four departments concerned with an edition has before him a running record of the pages yet to be made up.

The system consists of four indicator panels (Fig. 1) and three control panels (Fig. 2). An identical indicator panel is located in the composing room, editorial department, stereotype department and the production office.

In operation, the indicator lamps are lighted in pairs at the master control panel when the number of pages in any edition is known. Lighting the master indicator panel by means of the toggle switches on the master control panel also illuminates corresponding lamps on the other three indicator panels.

Three control panels are used. A master control panel used under the direction of the composing room superintendent is mounted in the composing room, as is also the second panel mounted in the page makeup department. The latter panel is operated by the makeup men as each page is sent on its way to the stereotype department. The third control panel is located in the stereotype department.

Each of the four indicator panels contains 48 pairs of lamps. However, provision is made for the future addition of 16 pairs. The front plate of the panel, of course, is opaque, being fabricated from sheet steel. Spaced at intervals are openings covered with translucent material bearing large figures corresponding to the page numbers. Behind the page number is mounted an incandescent lamp, the illumination of which is controlled at the makeup department control panel station. The other lamp of the pair (at upper left of each page number) is a small red indicator which is controlled in the stereotype department. Both lamps are controlled as a pair by the master control panel.

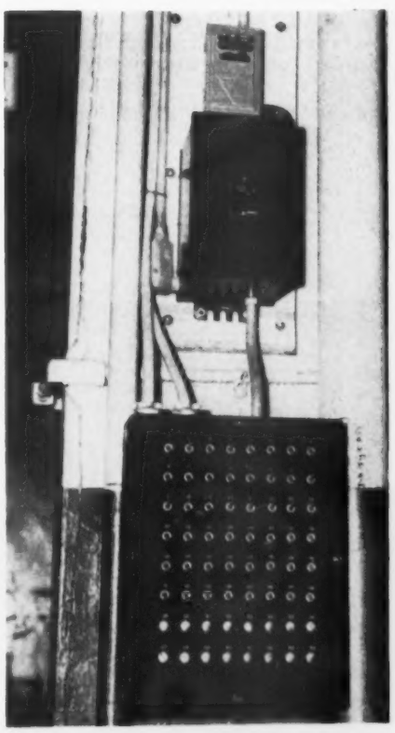


Fig. 2.—There are three of these toggle switch control panels, one each for the composing room superintendent, the makeup department and the stereotype department. Each of the panels measures 13 in. by 17 in. The function of the superintendent's panel is that of a master control. The makeup panel is used only to show on the indicator boards that a madeup page has been sent to the stereotype department. The stereotype department panel is employed to extinguish a small red lamp on the indicator panel to show that the mat has been molded for a certain page and has been sent to the platecasting department.

When makeup for a page has been completed, the makeup man en route to the mat rollers, throws a switch on the printers' control panel, thereby extinguishing the corresponding large numeraled lamp for that page. The small red lamp for that page will continue to glow until the stereotype casting department receives the molded mat. At this time, a switch will be thrown on the stereotype department control panel that will put out the small red lamp for that page. This procedure continues until all the lamps on the indicator panels have been extinguished.

For each edition, only those pairs of lamps are lighted where the corresponding pages are designated for replate. No edition indicators are used since the edition being worked on at any particular time is established by the time of day.

Rosback Installations

Recent installations of Rosback bindery equipment reported by the F. P. Rosback Co. are as follows: *Auto-Stitchers*—Senora (Calif.) *Union Democrat* (installed by The Steward Co.); Weaver Publishing Co., Santa Monica, Calif. (installed by The Steward Co.); The Gorham Press, South Norwalk, Conn. (installed by Merit Printers Supply Co.); U. S. Government Printing Office, Washington, D. C. (installed by E. H. Walker Supply Co. Inc.); Brooks & Sons, Chicago (installed by Western Newspaper Union); Overhead Door Corp., Hartford City, Ind. (installed by Addressograph-Multigraph Corp.); Warfel, Inc., Richmond, Ind. (installed by American Type Founders); Garman Printing Co., East Chicago, Ind. (installed by Tompkins Equipment Co.); New Buffalo (Mich.) *Times* (installed by Kalamazoo Printing Machinery Co.); Karman Art Printing Co., St. Paul Minn. (installed by Perfection Type, Inc.); General Baptist Press, Poplar Bluff, Mo. (installed by Western Newspaper Union); Elizabeth Mission Society, Allegany, N. Y. (installed by Buffalo Printers Supply Co.); Novelty Bookbinding Co., Philadelphia (installed by R. W. Hartnett Co.); and Boyd Printing Co., Dallas, Tex. (installed by E. C. Palmer & Co.). *"Twenty-Two Special" Perforators* — Deuel Vocational Institution, Tracy, Calif. (installed by Chas. H. Zipser Co.); Greenwich Hospital Assoc., Greenwich, Conn. (installed by Addressograph-Multigraph Corp.); Lawson Printers, Battle Creek, Mich. (installed by Kalamazoo Printers Machinery Co.); Glenville Printing Co., Cleveland, O. (installed by Caxton Printers Supply Co.); and Farmers Mutual Insurance Co., Enumclaw, Wash. (installed by Addressograph-Multigraph Corp.); *Pony-Vari-Speed Perforators*—Kurt H. Volk, Inc., Bridgeport, Conn. (installed by E. P. Lawson Co., Inc.); and Western Printing & Lithograph Co., Poughkeepsie, N. Y. (installed by E. P. Lawson Co., Inc.). *Gang Stitcher* — Curless Printing Co., Blanchester, O. (installed by Nessler & Wagner Co., Inc.).

Many of our production executive readers will respond to your Position Wanted Ad in the Classified Section of *Printing Equipment Engineer*. Rates on p. 99.

Establishing Sound Inspection Procedure

By CHRISTIAN E. BURCKEL*

**Member: Research and Engineering Council of the Graphic Arts Industry.*

IN THE December issue of *Printing Equipment Engineer* I defined the term Maintenance and discussed the seven kinds of maintenance that must be considered in setting up a program to preserve capital investment.

In this article I shall discuss the first two of the seven categories of maintenance: (1) Operative Maintenance, and (2) Inspection. But before I get too involved in stating my views may I point out that any of the statements or recommendations I make must be weighed and modified in the light of the kind of plant in which these services are to function.

It needs only to be mentioned to be accepted, that the division of responsibility for maintenance requires the participation of several people to whom the different jobs are to be assigned. If the plant consists of only the owner and perhaps one partner or helper, there isn't much dividing to be done.

However, the assignment of responsibility is not nearly as important as the fact that the job must be done. Many a foreman has assigned a job to some one, only to find later (or too late) that it wasn't done. That, again, is a matter of supervision, and not the burden of this article.

First, let me discuss Operative Maintenance. Frankly, it is belaboring the point to talk about Operative Maintenance because nine out of ten people call it plain operation. However, by any other name, the Foreman or Plant Manager must recognize the function of maintenance performed by the operator, even if there are oilers and maintenance men in the plant whose duties presumably relieve the operator of the responsibility of maintenance.

No matter how you slice it, the fact remains that the production of a Graphic Arts product requires the coordination of many efforts and skills and the cooperation of all personnel involved—unless there is only one person doing everything from start to finish.

This means that the operator can't just operate, and the maintenance man can't just maintain—they're in the same boat, as regards keeping the equipment going efficiently—and each must have a sympathetic understanding of the other's problems so that they can work together to get the job done.

That brings me to the subject indicated in the caption of this article: *Establishing Sound Inspection Procedure.*

I'm going to direct this talk to the head of a large plant, and assume that the manager of a small shop will adjust the procedures I outline to fit a modest production program employing a limited number of people. The problems are not just the same—they are identical: *keeping the equipment going*—and, we might add, *efficiently and economically.*

An Inspection Program is in the making when some one starts looking for trouble (with the hope, of course, that he won't find any). All that is necessary to make a casual look-see into a program is to repeat the look-see again and again according to a pre-determined schedule. In other words, establish as a part of plant operation, the function of checking the equipment regularly—every shift, or every week, every month, every Fourth of July, every year, at the beginning of the job, or at the end of a job, or every 100,000 impressions, etc. You get the idea! When you set a period, at the beginning or end of which the equipment is going to be inspected, you have embarked upon an Inspection Program.

Let's compare our Inspection Program with Mom's, to point out pertinent elements. After all, equipment is very much like a small boy—they both have to be watched constantly to keep them out of trouble.

Ready for school: (beginning of a job)

(1) Got your books?
(2) Got your lunch?
(3) Got a handkerchief?
(4) Got your homework?
(5) Did you wash?
(6) Did you put on a clean shirt?
(7) Got your carfare?

Any one item of this check list that might be missing could defeat the purpose of Sonny's going to school. Oh, sure, he could sniff instead of using his handkerchief; he could get by with a dirty shirt—but what about mother the next time she attends the PTA meeting?

One difference in our comparison–the boy will grow up and take care of himself eventually (especially when he meets "her"), but the machine will only grow old and need more attention than before.

Now, let's see. We have a Program—a check-list regularly and periodically applied. All that remains is to make the program a procedure, and finally, to make the procedure sound. What's the difference between a program and a procedure? I may be splitting hairs, but this hair has to be split!

A program (to my mind) is a plan to do something while a procedure is doing it.

An Inspection Procedure, therefore, has to be established to accomplish some specific and definite objectives. In this case, our objective is to keep the equipment in tip-top shape so it can accomplish what it is designed to do.

Let's list a few objectives:

(1) To keep people from getting hurt
(2) To keep the work clean
(3) To keep the equipment going without interruption
(4) To prevent excessive wear of moving parts
(5) To prevent fire.

That's few enough. You can think of some more. Now, let's organize things so that we can achieve the objectives listed above:

(*Continued on Page 88*)

New Orleans Marks First Printing Week—The first celebration of Printing Week in New Orleans (La.) included ceremonies held before the statue of Benjamin Franklin in Lafayette Square. Graphic Arts leaders attending are shown, from left to right, as follows: front row, Harold N. Cornay, Press of H. N. Cornay; William Pfaff, Searcy & Pfaff, Ltd.; Fred Jung, E. C. Palmer & Co.; Printing Week General Chairman J. M. Duffy, Printer's Supply Mart; Miss Printer's Devil, Irene Crawford; Emmitt Johnson, Quality Linotyping Service, Inc.; Edmond LaBauve, Allied Printing Trades Council; and Public Streets Commissioner Walter M. Duffourc. Rear row, C. J. Todhunter, New Orleans Lithograph Co.; John T. Upton, E. S. Upton Printing Co.; Burton Cary, Cary Press; Elmer C. Freed, New Orleans Public Service, Inc.; Jules Richard, Paragon Printing Co.; and Chester W. Howe, Exec. Secy., Printing Industry of New Orleans.

Workflow

By OLIN E. FREEDMAN and GEORGE W. ERB*

**Mr. Freedman is a consultant to management in the Graphic Arts and allied industries. Mr. Erb is a member of his staff, specializing in plant layout work.*

IN THE sense accepted in many industries, *workflow* is understood to represent the receipt of raw materials and their movement through the sequence of processing operations up through the point of shipment. In the Graphic Arts industry, however, this term must be applied somewhat more broadly if its fullest potential benefits are to be realized, for all except the most highly specialized printing activities are concerned with a multiplicity of made-to-order jobs moving forward concurrently.

Thus, preparation of forms and/or press plates, procurement of special lots of stock and ink and even the submission of proofs and the making of corrections become parts of the pattern within which it is desirable that operations shall move and be synchronized as parts of the overall picture. This broad concept requires that every motion within a plant, *e.g.*, transporting of matter to and from proof presses or saws, or even the transmission of instructions, whall be subject to the same type of careful planning as governs the more obvious movements such as of stock from pressroom to bindery.

Don't Confuse the Term

Only too often, thinking on the subject of workflow becomes confused by use of the term "straightline production," sometimes expanded by addition of the words "and freedom from backtracking." It is entirely true that many of our nation's industries have achieved their greatest economies and their successes in volume production through adoption of that principle; so it is only to be expected that, in the period of emergence of the Graphic Arts from the status of a craft to that of a manufacturing industry, much thought would be given to techniques which have been proved sound and desirable in general industrial practice.

True Workflow

In actuality, however, the structure of a mass-production industry, in which materials are introduced at one or numerous points and then flow or converge in a straightforward direction to the point of shipment, has little bearing upon manufacturing procedures in our industry (excluding perhaps a few of the very largest plants), and undue attempts to create straightline conditions can but too frequently result only in unnecessarily great distances between work centers requiring close liaison and in excessive use of expensive floor space. The point to be borne in mind is that a true flow of work may be readily effected without special regard for the specific direction in which movement takes place in any given area, so long as orderliness and control are maintained, distances in the aggregate are held to the least practical minimum, and no undesirable congestion is created at any point. Since work in process moves spasmodically and with considerable infrequency in a printing plant, the problem is seldom comparable to that of a factory turning out a steady flow of one or a limited number of absolutely standard products. There can be no valid objection to the intersecting or even the crisscrossing of lines along which work moves, or even to movement in both directions along a given aisle, provided that such an arrangement results in the greatest potential elimination of waste or superfluous motion and in the holding together of various work centers as cohesive, highly productive units.

Flow Lines in Diagrams

As is well recognized, a proper plant layout is fundamental to the establishment and maintenance of an efficient flow of work. But the introduction of workflow lines within the drawing of a floor plan can too often lead to confusion and misconceptions; for without the most careful analysis of every detail and consideration, a layout which actually entails the least motion of personnel and movement of materials may appear *superficially* to be the most complex or even jumbled. For that reason, the best procedure will usually prove to be to

omit such flow lines from drawings, to list all movements separately and then to study each for possibilities of further improvement in itself and also in relationship to the plan as a whole.

Analyzing the Plan

Illustrated in the accompanying floor plan diagram is the actual rearrangement of a portion of a plant within the limitations of an existing building. In it is depicted the third floor of the Strathmore Company of Aurora, Ill. The diagram is reproduced by permission. In the course of the preparation of this layout, numerous alternatives were considered, as is almost invariably essential if the one best plan is to be evolved. At the same time, a tabulation of the movements of personnel and materials was made. With each change or modification in the floor plan (through use of movable templates), the list was revised. The final decision was based to as great an extent upon information disclosed by that listing as by scrutiny of the layout itself. That ultimate analysis, which satisfied all concerned that motion had been reduced and congestion relieved to the greatest extent possible within the confines of the floor itself, illustrated the following highlights:

Composing Room

Foreman—Since the foreman is the contact man with the sales department and customers, all details at the inception of each job and during the course of production flow through him. He requires close contact with machine-set composition, hand composition and makeup, and proofreading, with his work table and files close at hand.

Linecasting—Completed composition is readily placed on the bank, which consists in this instance of three 25 in. by 34 in. galley cabinets. Subsequent bank operations are performed with ready access to saw, proofpress, additional long-galley storage and proofroom without interference with or by other workers.

Makeup—The areas assigned provide both working top space and storage for live matter in order that footwork may be minimized. Ready accessibility to saws, proofpresses, material cabinets, miterers and slug cutters is planned for each man.

Lockup—Made-up pages are transported to this division in trucks in which an entire form is usually accumulated. Close proximity to the job presses permits of transportation of forms and the giving of lineup OKs the most readily in that group of presses which handle the shortest runs and the greatest number of individual jobs.

Pressroom

Insofar as is possible, the presses expected to handle the shorter runs are placed the closest to the lockup and lineup division. All can readily receive stock by elevator from the storeroom on the first floor, hold it within the work area between times through the press and deliver it to the bindery. This was accomplished despite certain considerations pertaining to variation of permissible floor loads in various areas and a tendency of the building to sway if too many flatbed presses were all located in the same direction.

Bindery

Workflow within this department becomes almost immediately apparent upon examination of the plan. Work from the pressroom to be cut as an initial operation goes to cutter B-1, thence to the folders and on to the stitchers. Work off stitcher B-7 is delivered trimmed, while that from stitcher B-8 can be trimmed on cutter B-11 without movement by truck.

Under no circumstances is it safe to assume that good planning and charting of workflow will in itself achieve the desired result automatically. Responsibility for success rests not only upon plant management but upon production management. If the scheduling function is so exercised as to keep operations closely interlocked, with work flowing promptly from each work center to the next in the sequence of production, delivery promises may be kept with a minimum amount of stock in process, forms waiting for press etc. at any given time, and without the sidetracking and the waiting for paper, ink, available equipment etc. which are, in far too many instances, the principal causes of congestion, disorderliness and waste or duplicated motion within even the best of plant layouts.

Legend — *Third Floor of the Strathmore Company, Aurora, Ill.*

Composing Room

C1 – Foreman's desk
C1A–Foreman's work table
C1B–Foreman's files
C2 – Cut cabinets
C3 – Linotypes
C4 – Magazine racks
C5 – Bank and long galley storage
C6 – Proofpress
C7 – Saws
C8 – Long galley cabinets
C9 – Type cabinets
C10–Material cabinets, with miterers and slug cutters
C11–Frames, each with two type cabinets
C12–10 in. by 16 in. galley cabinets
C13–Proof presses
C14–8¾ in. by 13 in. galley cabinets
C15–Cut cabinet
C16–Cut file
C17–Wrapping table
C18–Water cooler
C19–8¾ in. by 13 in. galley cabinet
C20–Monotype matrix storage
C21–Monotype keyboard
C22–Monotype casters
C23–Material maker
C24–Work bench

Lockup Division

LU1–51 in. by 75 in. stone
LU2–39 in. by 63 in. stone
LU3–Live form racks (large presses)
LU4–Dead form rack (large presses)
LU5–Chase rack (small presses)
LU6–Furniture rack

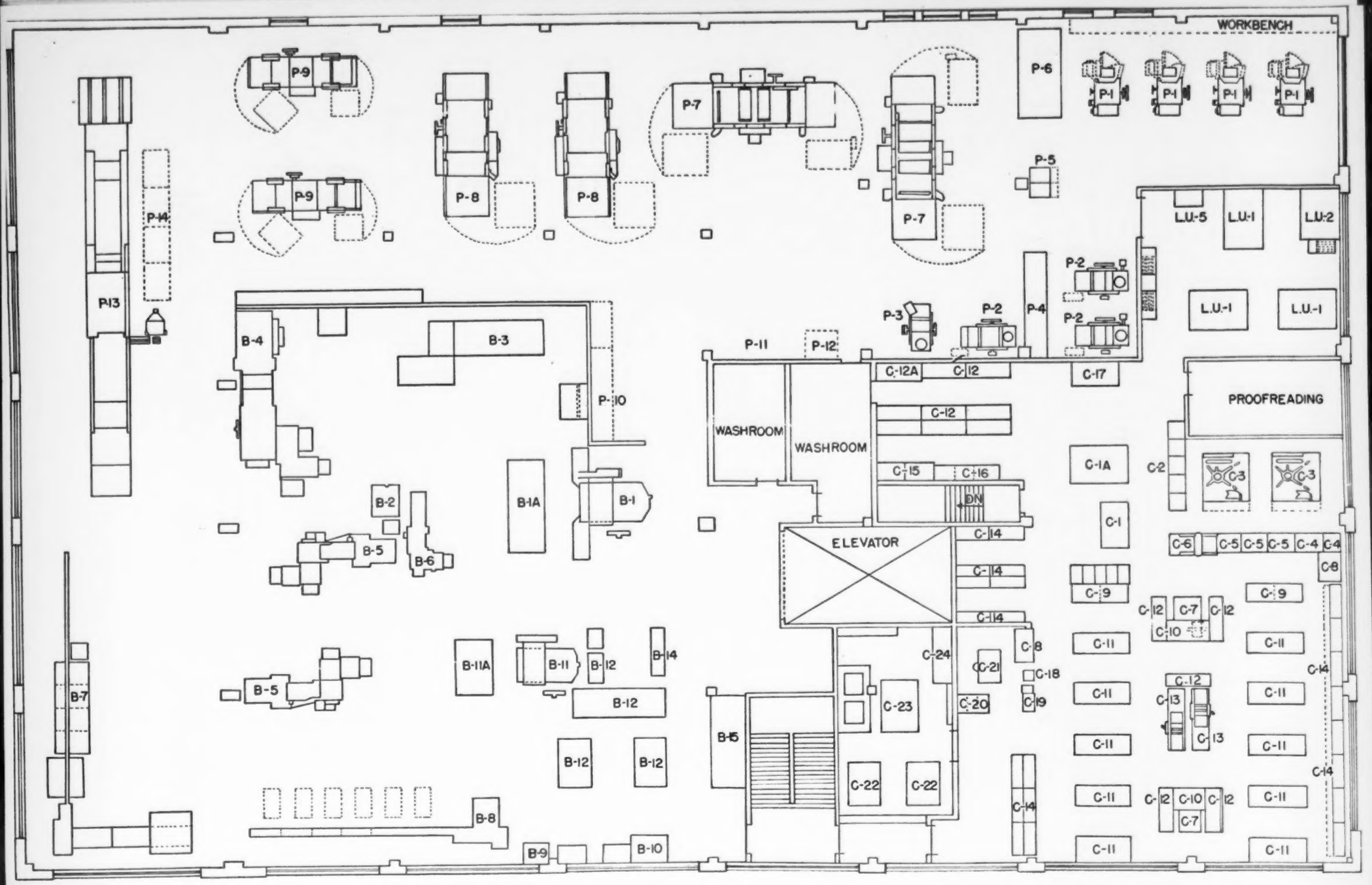
Pressroom

P1 – Miehle Vertical presses
P2 – Kluge presses
P3 – Open platen press
P4 – Kluge press work table
P5 – Chase racks
P6 – Hacker proof press (for pre-registering)
P7 – Two-color Miller Major presses
P8 – Single color Miller Major
P9 – Miehle Horizontal presses
P10–Ink cabinets
P11–Foreman's area
P12–Makeready booth
P13–Hess & Barker two color rotary web press
P14–Roll stock storage

Bindery

B1 – 50 in. cutter
B1A–Cutter table
B2 – Perforator
B3 – Baum folder
B4 – Cleveland MM folder
B5 – Cleveland OS folders
B6 – Cleveland WW folder
B7 – Christensen stitcher
B8 – Christensen saddle-stitcher (hand fed)
B9 – Hand stitcher
B10–Drill
B11–Cutter and trimmer
B11A–Cutter table
B12–Wrapping and mailing
B13–Tying machine
B14–Mail-bag rack
B15–Table and cabinet

R. Reid Vance, Exec. Secy., Printing Industry of Ohio, presents to Carl Vitz, Librarian, Public Library of Cincinnati and Hamilton County, a plaque memorializing William Maxwell, Cincinnati's and Ohio's first printer. Presentation was made at the Printing Week Banquet in Cincinnati. The plaque, a joint project of the Cincinnati Club of Printing House Craftsmen, Graphic Arts Association, Miami Valley Lithographers and Printing Industry of Ohio, will be placed in the new library being built in Cincinnati.


WORKBENCH
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
P-10
P-11
P-12
P-13
P-14
L.U.-1
L.U.-2
L.U.-5
PROOFREADING
WASHROOM
WASHROOM
ELEVATOR
DN
C-1
C-1A
C-2
C-3
C-4
C-5
C-6
C-7
C-8
C-9
C-10
C-11
C-12
C-12A
C-13
C-14
C-15
C-16
C-17
C-18
C-19
C-20
C-21
C-22
C-23
C-24
B-1
B-1A
B-2
B-3
B-4
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B-9
B-10
B-11
B-11A
B-12
B-14
B-15

Paper Properties as Related to Printability

By WILLIAM H. BUREAU*
*Butler Paper Corporations, Chicago.

Part V.—BRIGHTNESS

PREVIOUSLY we have considered what effect the properties, Degree of Flatness, Ink Receptivity, Cushion and Opacity have upon the printability of paper. These properties considered as a whole still do not completely constitute all requirements for satisfactory printing.

A paper might have incorporated in it each of these basic requirements in the most desired combination, give perfect reproduction of each halftone dot, yet you couldn't see what was printed. Yes, this is a strange statement, yet consider that after careful makeready, ink adjustment, etc., you pull an impression of black ink on a perfectly black paper. The black printed image would be on the black paper, but would be invisible. Next, suppose you make an impression on a gray paper. The printed image would be visible, but certainly wouldn't stand out forcibly. Then, you finally make an impression on a normal white paper and obtain a very striking print. Of course, this is not a normal procedure, but is an actual experiment that readily illustrates the necessity of creating a contrast between the ink film and the unprinted blackground or paper surface. This is the fundamental purpose of printing. This illustration leads us to the subject of this article. Our considerations shall be confined to white paper.

The terms "brightness" and "whiteness" occur in conversations among those in the paper and Graphic Arts industry, but are often misunderstood.

What is Brightness?

Brightness as applied to *white papers only* refers to the extent to which paper reflects light, or how efficiently it reflects all of the light that reaches it. A perfectly white surface would reflect 100% of all light reaching it regardless of the wave length (color) of the light. Such a surface would have a theoretical brightness of 100%. The adjective "theoretical" is used since no perfectly white surface exists. So science turns to a substance which most closely approaches the perfectly white surface, and in the case of the paper industry, this is one of freshly prepared magnesium oxide, whose brightness is about 98% of the theoretical white. Magnesium oxide becomes our primary standard and, for purpose of convenience, is given an arbitrary brightness rating of 100%.

The exact opposite of the perfect white surface is a black one, whose brightness is zero. A pure gray surface may be thought of as a compromise between black and white, having low brightness or the property of reflecting uniformly light of all wave lengths, but to a much lesser degree than the white surface.

We now have a means of rating the brightness of a given white paper by comparing it with our established standard. The brightness meter accomplishes this by (1) Measuring the total amount of reflected light from the paper under test, (2) Measuring the total quantity of reflected light from the standard, and (3) Giving us the brightness reading as the per cent ratio of total light reflectance of paper to that of the standard. For example, if a paper reflects 80% of the light reflected by the standard under identical conditions, its brightness is 80%. Conditions of illumination, wave length of light used and design of instrument are exactly defined and closely controlled in order to have a reproducible method of testing throughout the paper industry. The brightness test is, therefore, not a means of measuring the color of paper or shade of white, but the "quality" or "purity" of whiteness, or to what degree it reflects light.

ANPA Exhibit Booths Are Still Available

An equipment and supplies exhibit area will be held in conjunction with the American Newspaper Publishers Association (ANPA) Mechanical Conference, at the Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., June 7, 8 and 9.

This meeting offers an excellent opportunity for manufacturers and dealers serving the newspaper industry to exhibit their products and services.

For exhibit information, please contact:

Printing Equipment Engineer
1276 West 3rd Street
Cleveland 13, Ohio
CHerry 1-6645

Brightness as Applied to Paper

Since the brightness of paper depends upon that of pulps, we consider pulp brightness first. Unbleached pulps increase considerably in brightness upon being bleached, the amount of increase depending upon the degree of bleaching, method of bleaching and nature of the pulp itself, as shown in Table II.

Table II—
Brightness of Pulps and Fillers

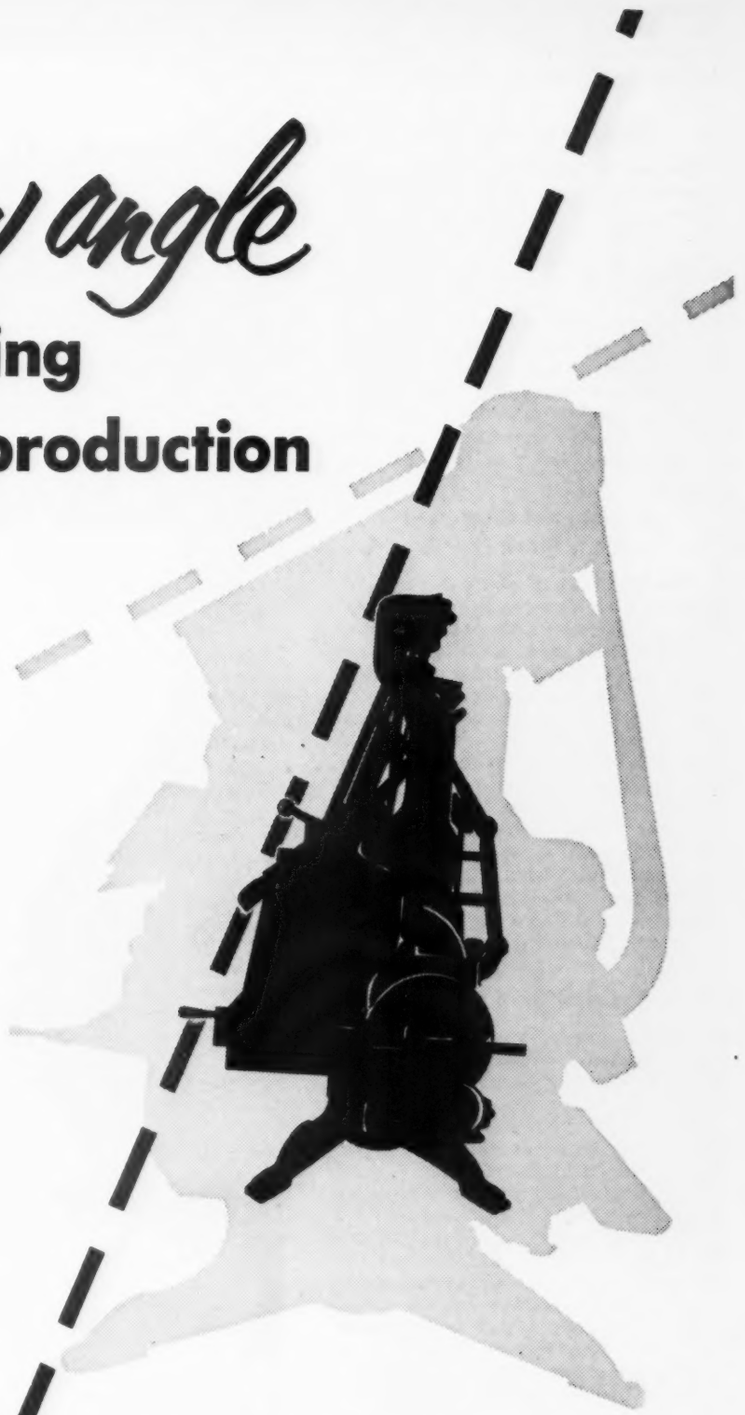
	Brightness Range
Unbleached chemical wood	25-65
Bleached chemical wood	70-85
Clay	65-95
Titanium Dioxide	97-98

All bleached pulps, though high in brightness, have a yellow tint and for that reason, red and blue dyes are most frequently added when converting pulps into paper in order to obtain a more pleasing white for the average eye. Actually, dyestuffs do not increase the brightness of pulp, but rather lower it, and this brings us to the source of confusion between "papermakers' brightness" and "visual brightness" as perceived by the human eye. No two persons see white exactly alike. That is why various persons, when asked to select the "brightest white" among a group of white papers, will seldom, if ever, agree unanimously in their selection. What usually happens is that each person selects what, to his eye, represents the most pleasing shade of white and this may not be the sample having the highest "papermakers' brightness". Most people seem to prefer a blue-white shade and also one with the addition of a slight tinting of red.

The above remarks should not lead you to believe that higher "visual brightness" can always be created by tinting white papers because over-tinting white papers, and particularly those of low

here's a new angle

on speeding straight-matter production



A new angle . . . a different angle . . . 70° to be precise . . . that's the magazine angle of the Linotype COMET, the fastest straight-matter machine in the world.

That steep angle *speeds* matrices into the assembler. It is one of the "instant-response" features of the Comet which enables your operator to set more type with less fatigue!

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brightness, results in a gray or dull white. The wartime white papers, which dropped considerably in brightness, made a good example of this fact.

Pigments and Brightness

The use of pigments as fillers has a pronounced effect upon brightness of paper, not only increasing opacity, but also raising brightness. Referring to Table II, note that clays can have over 90% brightness, which is higher than that of bleached pulp. Titanium dioxide with its very high reading imparts the highest brightness to paper. The beautifully bright papers of today are the result, not only of brighter pulps, but also the availability of these pigment fillers just mentioned. Titanium filler had its inception in the paper industry in the early '30s.

Brightness of Coated and White Lined Papers

The brightness of coated paper is dependent upon the coating pigments, the amount of sizing in the coating, brightness of the raw stock, and degree of calendering. Super calendering of the coating always reduces brightness, and excessive calendering causes noticeable blackening. This applies to uncoated paper as well. The addition of more sizing in the coating lowers the brightness unless compensation is made otherwise.

In the case of paperboard, the brightness of the liner, as well as its thickness, determines the board brightness—the thicker liner having a greater covering power over the darker middle and, consequently, better brightness.

Practical Considerations

Printed images, in order to stand out most strikingly on paper, require the highest possible contrast between paper and ink film. Since contrast might be defined as the difference in brightness between printed film and paper, the higher the brightness of a white paper, the greater will be the brightness difference or contrast. As mentioned earlier, a black halftone dot could not be seen on black paper. This same dot could be seen on gray paper. Likewise, so would highlights and shadows, but the various degrees of contrast, that is, tone value, capable of being reproduced by the plate would be lacking on gray paper. Therefore, to develop the numerous differences in tone value from 100% solids to the faintest highlights requires paper of high brightness level. The brighter (whiter) the paper, the more evident are the delicate differences in tone value or the "sharper are the details". What has just been said is considered purely from a true brightness standpoint, but since we are also concerned with "visual brightness", then "shade of white" must be discussed.

Unfortunately, the selection of the proper shade of white is usually made from a group of unprinted samples; oftentimes by some individual and not by the printer or engraver who will actually produce the finished job. In such cases, the particular shade of white selected from the group will be that which is the most pleasing to the viewer's eyes and without possible regard for what will be the best shade of white after ink is printed on the paper. For example, a pronounced blue-white shade of white might be selected, but this may not be the most desirable shade if the subject matter is to be a four-color reproduction of an art subject, flowers or fruit, where background is to give a "warmth" to the subject. In this case, it might be found that a sheet with a pinkish cast or different shade of white will actually lend better background to this particular subject. The selection of the proper shade of white should, in many cases, be given careful attention, taking into consideration the nature of the subject matter to be printed on the paper, whether one-color or four-color, etc. Many large users of paper, such as publishers of magazines and periodicals, devote considerable study in determining the most desirable shade of white for this reason.

Also, in comparing a group of samples, do not overlook the lighting conditions under which observations are made. Generally speaking, a North light illumination on a clear day is the most desirable. Paper that is to be used consistently under artificial light rather than daylight should be examined under that type of lighting before the selection is made.

Theoretically, there are an unlimited number of shades of white and, in practice, there are many. Each shade is perceived somewhat differently by each pair of human eyes. For this reason, white paper must be considered not only in accordance with the physics of light, but also from the subjective viewpoint. Obviously, no paper manufacturer can produce one shade of white that will be the most pleasing to everyone. Thus he must decide upon that shade which will be the most pleasing to the majority. This subject, although confusing at times, is certainly never lacking in fascination.

(To Be Continued)

Type and Design Workshop

The second of the Workshops instituted under the presidency of Howard N. King, will be held soon by the Intl. Craftsmen's Assoc. The Type and Design Workshop will take place in the composition plant of Warwick Typographers, St. Louis, Mo., on Saturday and Sunday, March 27 and 28. Advance registration to the St. Louis meeting should be made to Type and Design Workshop, P.O. Box 150, Mt. Morris, Ill.

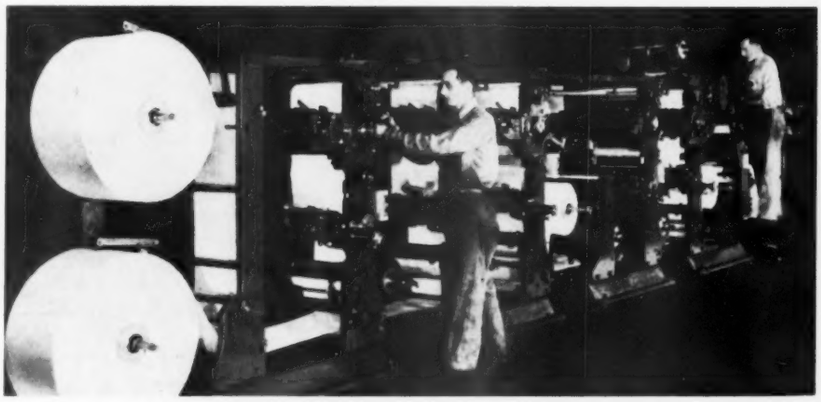
Instructors for the Workshop will be selected from among the Typocrafters, a group of Mid-western typographers. Talks will be devoted to all phases of type and design including calligraphy, layout, copyfitting, slide rule operation, reproduction proofs, composing room procedure, phototypesetting, preparation for offset and mechanical pasteups.

The instructors will make use of blackboard, samples, visuals, slides and other means to illustrate their talks graphically.

Hec Mann, Mt. Morris, Ill., will head the Typocrafters in cooperation with H. J. Echele and John M. Lamoureux of Warwick Typographers who now operate three Intertype Fotosetter machines besides an extensive hot-metal composition division. Warwick Typographers is one of the leading companies in America.

To Find the Right Man

The many mechanical and production executive readers of *Printing Equipment Engineer* are vitally interested in improving production methods. They prove that by reading *Printing Equipment Engineer*. Your Help Wanted Ad in the *Printing Equipment Engineer* Classified Section will bring response from highly qualified men. Rates on page 99.



ATF Press for Egry Register— The Egry Register Co., Dayton, O., recently installed this special web-fed printing and collating machine manufactured by American Type Founders. The press, which prints from rubber plates, numbers and perforates five ribbons of paper and interleaves them with four ribbons of carbon tissue. The machine collates, glues and cuts forms into 17 in. lengths. Max. web width is 14 in. Paper roll diameter is 32 in. and carbon roll is 16 in. The press is equipped with five printing stations, five numbering units, five vertical perforating units and a punching unit which punches all paper and carbon webs in a single operation. The delivery is of the automatic switch type, which delivers 50 sets of forms alternately to each of two delivery tables. The press is geared to produce 12,000 sets of glued forms per hr.

Mac—
The Milwaukee Journal has 27 Morrison saws and the machinist spends only 2½ hours a week sharpening blades. No chargeable time or outside expense for sharpening. — Al

The partial view of the Milwaukee Journal's Composing Room shows another practical arrangement of a saw for each two make-up tables. The Journal has 27 Morrison Saw Trimmers and 2 Morrison Slug Strippers.

MORRISON 3-A SAW TRIMMER

Morrison 3-A Saw Trimmer features the patented Universal Blade and Sharpening attachment that effects savings so great that it will eventually pay for the equipment. Write for facts and details of this and the many other outstanding advantages obtained with Morrison Saw Trimmers.

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Two Harris-Seybold vice presidents are shown a web press on the Cottrell plant floor in Westerly, R. I., by Joseph E. Meyer (center), Cottrell's Engineering Vice Pres. They are Ren R. Perry (left), Vice Pres.-Sales, and W. R. Spiller, Vice Pres.-Engineering.

Cottrell's Executive Staff Changed by H-S Purchase

Several events that reflect plans for future operations of C. B. Cottrell & Sons Co. have been announced, following the purchase early in December of Cottrell's assets by Harris-Seybold Co. Donald C. Cottrell was re-elected as president of the firm he has headed since 1949, which will now be operated as a wholly-owned subsidiary of Harris-Seybold. In addition, all Cottrell officers were re-elected several days after the purchase was announced. Several Harris-Seybold men were also named officers of the subsidiary, and a new board of directors containing both Cottrell and Harris-Seybold executives was elected.

The two firms have each mailed their customers a four page folder announcing the acquisition. It was stated in the bulletin that the combining of Cottrell with Harris-Seybold is expected to produce mutually beneficial developments for all major printing processes and progressive programs are planned. Samples of work produced by both Harris and Cottrell equipment are illustrated, while the back cover presents aerial views of four of the six plants that Harris-Seybold now operates.

George S. Dively, president of Harris-Seybold, has been elected chairman of the Cottrell company's new board of directors. Other newly elected directors are Donald C. Cottrell and Ren R. Perry; M. H. Glover, Senior Vice Pres., Hartford National Bank and Trust Co.; W. R. Spiller, Vice Pres.-Engineering, Harris-Seybold; and Joseph W. Powell, jr., Harris-Seybold's Financial Vice Pres.

Other officers of the Cottrell firm are as follows: Charles P. Cottrell, jr., Vice Chairman of the Board; Albert J. Graf, Vice Pres.-Westerly Plant Mgr.; Carl C. Sweet, Vice Pres.-Milwaukee Plant Mgr.; Stanton C. Saunders, Vice Pres.-Dir. of Sales; Albert Halstead, Vice Pres.-Sales Mgr.; Joseph E. Meyer, Vice Pres.-Engineering; Joseph W. Powell, jr., Vice Pres.; Arthur M. Cottrell, jr., Secretary; Karl G. Stillman, Treasurer; Frank C. Szuter (Harris-Seybold), Asst. Secy.; and David E. Dredge (transferred from Harris-Seybold), Asst. Treas.

Printing Equipment Engineer Classified Ads may be found on Page 99.

Signing of the documents for Harris-Seybold Co.'s purchase of assets of C. B. Cottrell & Sons Co. took place in Cottrell's offices in Westerly, R. I. Present at the signing were, left to right: W. Homer Conkling, Loomis, Suffern and Fernald, Cottrell's New York auditing firm; Paul J. Bickel, Squire, Sanders & Dempsey, Harris-Seybold's Cleveland attorneys; Stanton C. Saunders, Cottrell's Vice Pres.-Dir. of Sales; Ren R. Perry, Harris-Seybold's Vice Pres.-Sales; George S. Dively, Harris-Seybold President; Donald C. Cottrell, Cottrell President; Joseph W. Powell, jr., Harris-Seybold Vice Pres.-Finance; Karl G. Stillman, Cottrell's Treasurer; Edward C. Spencer, Harris-Seybold Treasurer; and Harold M. Nichols, Asst. Mgr., Ernst & Ernst, Cleveland accountants and auditors for Harris-Seybold.

Room Number Reference List

Printing executives in considerable numbers attend the many Graphic Arts conventions held each year throughout the United States. In many cases, the printing executive wants to see an equipment or supplier representative—to place an order, to obtain equipment information, to greet sales representatives or simply to discuss some technical problem with one of his fellows. He usually starts getting information immediately regarding manufacturer and supplier room numbers. Considering the high pressure under which a convention secretary and his assistants work, it is distinctly impolite to ask for manufacturer and supplier company room numbers.

The usual procedure in locating room numbers goes about as follows: (1) Call the hotel room information; (2) Ask somebody if he knows the number, or (3) Run across a representative of the company in the lobby.

At the recent Great Lakes Conference in Indianapolis, somebody conceived the idea of posting the names of manufacturer and supplier companies with their room numbers on a large display card near the secretary's desk. Only those companies wishing to be listed appeared on the sign. Anyhow, the idea was pleasing to the mechanical executives, particularly those having business to transact.

Film to be Shown

The premiere showing of *The Electrotype*, a color-sound film prepared by the Intl. Assoc. of Electrotypers & Stereotypers, will be held at the Association's 1954 Spring Conference, April 6-7 in the Sheraton-Gibson Hotel, Cincinnati, O.

Shown in the film are the production of the letterpress precision printing plate, the function of the precision electrotype used in magazine publication, and the function of the stereotype in newspaper publication. It also shows the evolution of man's recordings from prehistoric to modern times, including Gutenberg's invention of movable type.

Dampener Roller Wash

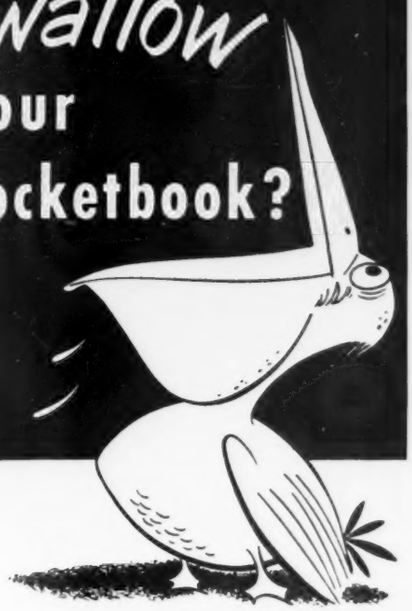
(By M. S. Kantrowitz, Chairman Research Committee, Washington (D. C.) Club of Printing House Craftsmen, Inc.)

Recently, a description was given of a new offset dampening roller wash developed by the Government Printing Office. This wash consists of refined Unitol, pine oil, varsol, isopropyl alcohol, and caustic soda in water.

The use of this solution has been discontinued and replaced in the Offset Press Section by a simpler and more economic roller wash consisting of a 2% solution of sodium sesquisilicate in water. This chemical is commercially known as Metso No. 99.

Advantages following this substitution are lower cost, easier formulation and equally satisfactory detergent qualities. This solution is satisfactory for efficiently washing the ink from Molleton covered dampening rubber rollers, without foaming during the rapid rotation of the two

Why let dross *swallow* your pocketbook?



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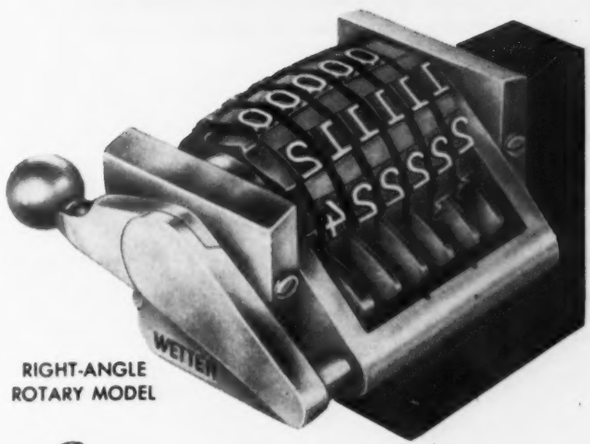

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Custom-designed for today's rotary presses, this cam-actuated, flat-base, curved-face rotary machine imprints—with precision—a line of numbers at right angles to the axis of the impression cylinder. Features: sturdy number wheels with heavy-duty ratchets in a one-piece steel frame; wheels carefully finished to conform to curvature of cylinder. Available in either Roman or Gothic style figures.

Number *right* and number *better* . . .
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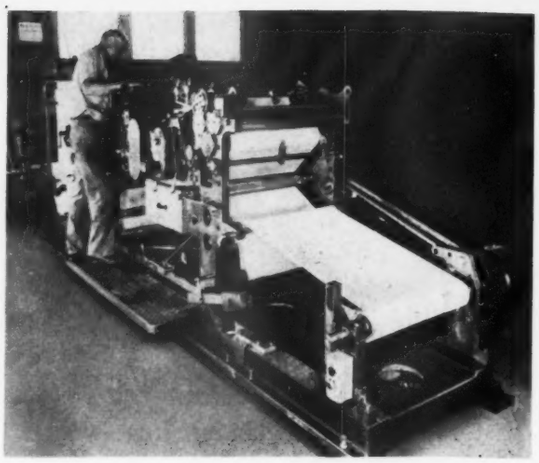
ONLY UNION MADE NUMBERING MACHINE IN U. S. A.

supporting steel rollers in the washing machine.

In the use of this new dampener roller wash, 4 lbs. of sodium sesquisilicate are dissolved in 27 gal. of water contained in the machine tank. The strength of this solution is sufficient for washing approx. six sets (three rollers to a set) of dampeners before replacing it with new solution.

The approx. cost of this material per tank, as used in the Government Printing Office, is 20c as compared with a cost of $4.35 per tank for the formula previously reported.



Web Offset Unit to National Manifolding—American Type Founders, Mount Vernon Div., recently erected the press shown in the accompanying illustration in the plant of National Manifolding Co., Dayton, O. This accommodates a web width of 26 in. on printing cylinders with a circ. of 17 in.

The machine is equipped with a paper roll stand operated with a PIV Speed Drive with automatic tension control to take a 40 in. diam. roll with a 3 in. core. Included in the machine are two offset printing units and a set of turning bars, which makes it possible to print two colors one side or one color on each side of the web. Also there is a numbering unit, a teletype punching unit, a file hole punching unit, two cross perforator units, a jump perforator unit, a vertical perforator and slitter unit and a rewind unit. Speed of the press is 15,000 cyl. per hr., when rewinding.

ATF has also installed a rotary collating machine for National Manifolding. The collator accommodates six rolls of paper up to 18 in. in diam. and interleaves five rolls of carbon tissue up to 12 in. diam. It is equipped with five standard glue pots. Cut-offs may be made at 8½, 11 and 17 in.

Metal "Spit" on Front of Molds

By Theodore (Ted) Gardiner

IF I were to make a guess as to the most frequent question asked at mechanical conferences about linecomposing machines, I would choose this question: How can you eliminate front "spit" on the molds?

The question is not a simple one to answer for the reason it can occur from several causes, none of which I can determine because of distance between myself and the machine. However, I believe I can give enough information that you may find the remedy yourself.

Before bothering the machine adjustments, examine each spaceband on the machine. Make sure they are not too much undersize. They should measure 0.5625 in. or 9/16 in. front to back of the sleeve. I would not permit the sleeve to vary more than 0.001 in.

Cast a few lines from a normally justified matrix line and stop the machine just after the mold with the slug in it has been pulled from the matrix line. If there is a low spaceband in the line a "spit" will show on the front of the mold. That is one solution. At this point, examine each mold carefully and look for loose screws, burrs, worn mold disk locking studs or deformed mold liners.

The next step is to determine if the forward thrust of the mold is correct. (Within 0.010 in. of the vise jaws.) In doing this, you will have to make sure the mold disk locking stud blocks do not have metal or dirt in them, at least not enough to prevent a full forward thrust of the mold disk. Also examine the mold slide operating lever eccentric stud and roll for wear.

Now, if the mold disk forward thrust adjustment is correct, it is a good idea to check the vise jaw parallelism with the molds.

I suppose every machinist has his pet way of doing this. I use the following method: First, disconnect the pot pump plunger; close the vise jaws and make sure they align properly with each other. Remove the first elevator back jaw. Open the vise jaws to approx. 20 picas. Turn the machine over by hand until the eccentric roll at the lower end of the mold slide operating lever is on the high point of mold cam shoe (the first shoe). Then with a 0.010 in. feeler gauge check the clearance from one end of the mold to the other. If there is a variance you will have to take it up by removing or adding to the brass packing washers under the l.h. vise locking stud in the mold gear arm. Then again check the mold vise jaw parallelism as before with the feeler gauge.

Whether you have a front spit or not, it is a good idea to check this adjustment about twice a year. You will find it easier to adjust the back knife for uniform type high slug trim.

I have always hesitated to mention this vise alignment to anyone unless I was sure he was a good enough machinist to handle it. If there is too much variance (as is usually the case) you will probably have to make new first and second elevator transfer adjustments.

When making the vise alignment adjustment, I usually check both the vise locking screws and vise locking studs. If there is too much wear I replace them with a new set before making the vise jaw mold parallelism adjustment.

This method, I find, provides opportunity to have a look at the first elevator jaws and vise mechanism. You will be surprised how many wrong little things can be found.

DEMAND NEW MACHINERY, Urges General Mgr.

Mechanical and production executives were urged to recommend new equipment to their managements when it becomes available. Speaking before the Great Lakes Conference, Indianapolis, Ind., in January, Gen. Mgr. Wm. A. Dyer, Jr., Indianapolis (Ind.) *News*, said: "Production men can assist in the development of new machines in the newspaper industry. The ratio between equipment prices and wage rates is 23% lower than it was in 1940. Now, more than ever machinery is a good buy."

In speaking about the high membership among newspaper mechanical workers in various printing crafts unions, Dyer mentioned that each one of these unions believes in the principle of an honest day's work for an honest day's pay. "Most of their members believe that, too," he said.

In talking to equipment manufacturer and supplier representatives in the audience, he asked: "Have you provided us with all the new equipment possible to cut down on the hand work so characteristic of our production . . .?" As an example Dyer discussed the Sheridan newspaper section stuffing machines installed by the Indianapolis newspapers after obtaining a pledge of cooperation from the mailers' union. He said: "It has paid off in increased production and it has increased the value to us of our journeymen mailers. We hope there will be more machines like this available."

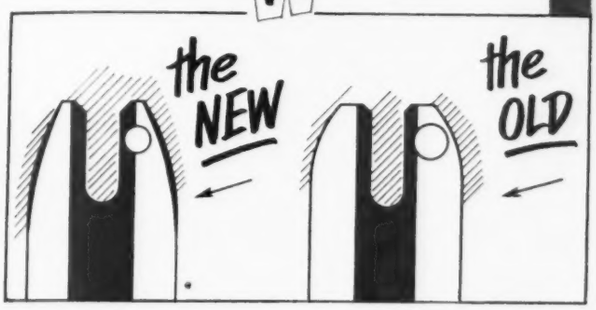
Better Zinc Surface Plates

THE Lithographic Technical Foundation, Inc., has issued a 186 page manual with instructions, formulas and illustrations on *How To Make and Run Better Zinc Surface Plates*. According to the introductory, the manual was prepared to make available knowledge of how to make albumin plates that print as well as good deep-etch plates for most offset printing. It was compiled from the research of Robert F. Reed, Paul W. Dorst, Michael H. Bruno, Paul J. Hartsuch, George W. Jorgensen and Edward J. Martin, and written by Jack W. White.

The methods advanced in the manual have been thoroughly plant tested, states Author White. A considerable amount of information is based on LTF's Research Bulletin No. 6, *The Albumin Process of Photolithography*.

Other sections are devoted to running the plate on the press, surface plate troubles, coating sensitivity, solutions for making surface plates on zinc and additional techniques in surface platemaking and useful general information. For further information write direct to Lithographic Technical Foundation, Inc., 131 E. 39th St., New York 16, N. Y.

THE SPACEBAND WITH THE "Streamlined Wedge"



The STAR Special Spaceband (M-20-4) is designed for higher speed Teletypesetter or manual operation. Its streamlined bottom is narrower and has clearances ground on lower front and back edges for easier assembler entry. These new features are ideal for both automatic and manual composition. Its extra 1½ point range permits justification that saves hand spacing on short measures.

To meet all composing-room requirements, STAR makes six different types of spacebands. All are precision manufactured from the finest materials. New grinding techniques make the wedges and sleeves interchangeable; new developments in tempering processes make the "STAR" Spaceband the toughest yet most resilient obtainable.

Sleeves and wedges may be purchased separately as needed to replace broken parts. This spells economy.

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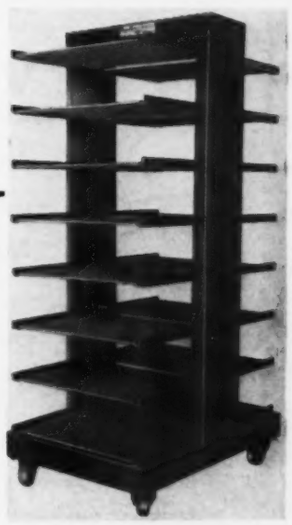

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17x22" boards notched for Kelly. 41½ sq. ft. of shelf space on 8½ sq. ft. of floor.
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Patents

For The GRAPHIC ARTS

Covering patents issued Dec. 1, 8, 15, 22, and 29.

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issued each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

BINDING, CUTTING, PERFORATING:

2,661,209. SHEET DISTRIBUTOR arranges a plurality of sets of sheets which are then fastened together to provide pamphlets, brochures, booklets, etc. Inclined trays are used to collect sheets from a conveyor on which the sheets are moved past the trays. There is a gate on each tray at the end adjacent the conveyor, the gates being pivotally mounted and under the control of a photo-electric mechanism which includes an endless chain having an arrangement for properly positioning the gates. Invented by David C. McGalliard, Short Hills, N. J. Unassigned. Application June 18, 1949. 11 Claims.

2,661,801. PAPER CUTTING MEANS WITH A SUCTION APPLYING DEVICE. A device is provided for cutting lengths of paper during movement through a portion of a printing press. The cutting mechanism has an outwardly exposed slot disposed transversely of the path of movement of the paper for applying suction to the paper along a zone transversely disposed to the cutting mechanism. The suction is applied to the paper in advance of the cutting mechanism which facilitates the engagement of the paper with the cutting mechanism. Invented by Lawrence Littman, Ramsey, N. J. Assigned, by mesne assignments, to Advance Holding Corp., Upper Montclair, N. J. Application Oct. 19, 1950. 11 Claims.

COMPOSING ROOM:

2,662,636. TYPOGRAPHICAL COMPOSING MACHINE. An escapement is used for controlling the delivery of spacebands one at a time from a storage magazine of a typographical composing machine. The spacebands each have a slide formed with a recessed side and a slot at the extreme lower end and an upper wedge-shaped section has projecting ears by which the spaceband is guided through channels in the storage magazine into a delivery chute. The escapement has an inclined guide rail extending upwardly from the storage magazine for engaging the spaceband slide slot and a fixed stop is engaged by the recess of the slide. An upstanding finger is arranged between the guide rail and the stop and reciprocates along a face of the stop for engaging the recess and arresting the foremost spaceband in an inclined position. As the finger is lowered, the spaceband swings into a position in which the recess engages the stop and as the finger is raised it engages the slot to lift the slide over the stop and swing the spaceband in the direction of the chute. Invented by Richard Henry Scott, Hale, England, and Arthur Staniland Hayward, Altrincham, England. Assigned to Linotype and Machinery Ltd., London, England. Application Jan. 11, 1951. 8 Claims.

2,663,232. COMPOSING APPARATUS is of the phototypographic type and includes a system of shutters operating to permit the ready selection of individual characters from the whole array of characters constituting the font on the object screen as desired. The machine is operated by a keyboard containing a plurality of keys and, when a key is depressed, a picture of a selected type character may be made on the film or the operation of the keyboard may set up a memory or storage mechanism. The latter causes an entire line of characters previously selected to be photographed on the film. Invented by Jacob H. Drillick, Brooklyn, N. Y. Assigned to The Phototypograph Corp., Dover, Del. Application June 29, 1950. 3 Claims.

2,663,258. PRINTER'S LOCKUP DEVICE includes a first set of spaced parallel locking bars having teeth and parallel grooves transverse to the teeth formed on its corresponding sides. A second set of spaced parallel locking bars is transversely disposed relative to the first bars and have a series of aligned, pedestal-like teeth formed on corresponding sides. The toothed sides of the second set of locking bars engage the toothed and grooved sides of the first set of locking bars. The teeth in the second set of bars mesh with the teeth and grooves in the first set of bars to firmly interlock the sets of locking bars. Invented by Henry J. Hilland, Chicago, Ill. Unassigned. Application March 1, 1951. 23 Claims.

2,663,406. TYPOGRAPHICAL DISTRIBUTING MACHINE employs a series of matrix magazines and a shift frame movable upwardly and downwardly to bring a selected magazine into use. A magazine entrance conducts matrices in the course of distribution into the selected magazine. The entrance is provided at its discharge end with a yielding flap which is caused to yield during the movement of the shift frame by engagement with a matrix lodged between the magazine entrance and the selected magazine. A lock arrests the movement of the shift frame automatically upon movement of the magazine entrance flap. Invented by Louis Rossetto, Flushing, N. Y., and Gino F. Squassoni, Corona, N. Y. Assigned to Mergenthaler Linotype Co., Brooklyn, N. Y. Application Sept. 2, 1950. 15 Claims.

2,663,407. SAFETY ATTACHMENT FOR TAPE OPERATED LINE CASTING MACHINES. The device is for use in a line casting machine equipped with a second elevator and a pump plunger. A stop finger normally occupies an active position to prevent the complete downward movement of the second elevator. The casting movement of the pump plunger causes the stop finger to move to an inactive position to permit the complete downward movement of the second elevator. Invented by Paul Hilpman, Garden City, N. Y. Assigned to Mergenthaler Linotype Co., Brooklyn, N. Y. Application Oct. 23, 1951. 3 Claims.

2,663,408. TYPOGRAPHICAL COMPOSING MACHINE. The machine comprises a column of magazines which is adjustable to allow a selected magazine to be brought into operative position. A power drive shifts the column of magazines, and a preselecting mechanism causes the power drive to bring any selected magazine of the column into operative position. Invented by Richard H. Scott, Hale, England, and Arthur S. Hayward, Altrincham, England. Assigned to Linotype and Machinery Ltd., London, England. Application Sept. 1, 1950. 17 Claims.

2,663,409. TYPOGRAPHICAL CASTING MACHINE. The machine employs a mold disk which is rotatable periodically from one to another position of rest during each machine cycle. A driving mechanism rotates the mold disk in one given direction through two different trains of connections from different positions of rest. One train of connections is automatically shifted to the other during each machine cycle and when the mold disk is at rest. Invented by William B. Abbott, Springfield Gardens, N. Y. Assigned to Mergenthaler Linotype Co., Brooklyn, N. Y. Application July 25, 1950. 14 Claims.

FEEDING, FOLDING, DELIVERY:

2,661,831. DRYING MACHINE CONVEYER AND TRANSFER MECHANISM is useful with a stencil printing machine in which a squeegee acts to force a printing ink or paste through a screen stencil onto sheet material to be printed. The device comprises two fixed stacks of shelves adjacent sides of the stacks being spaced apart and arranged face-to-face. The shelves of one stack are disposed in staggered relation with respect to shelves of the other stack.

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Interconnected sets of push rods extend vertically through their respective stacks of shelves to move articles back and forth between the two stacks to cause articles to descent through the drying machine. Invented by Leo G. Kenney, Chicago, Ill. Unassigned. Application Jan. 3, 1951. 8 Claims.

2,661,946. METHOD AND MACHINE FOR INTERLEAVING AND STACKING SHEETS OF PAPER AND SIMILAR MATERIALS. Interleaved sheets of paper are retained in V-shaped recesses of serrations of a pair of interleaving rotors disposed so that recesses of one set of serrations cooperate with apices of the other to produce desired interleaved relationship until the sheets reach a horizontal conveyor. Suction and air pressure are alternately applied to each rotor, suction being applied to one rotor at the time air pressure is applied to the other, and vice versa, to effect and maintain the interleaving of the sheets and stacking of the sheets at the end of the interleaving operation. Invented by Louis Jean Chambon, Paris, France. Assigned to Société d'Etudes de Machines Speciales Société a Responsabilité Limitee, Paris, France. Application Dec. 15, 1950; in France, Dec. 15, 1949. 10 Claims.

2,661,950. STACK JOGGER is adaptable to printing, binding, and trimming machines, and comprises a housing having an inclined cover, a tray having a base, a front wall and a side wall. One of the ends of each of the front and side walls abuts at the same corner of the base to form a right-angle. An adjustable frame on the tray retards and separates paper being fed to the tray. The tray is pivotally attached at a single point to the cover and is spaced away from it. The axis of the pivot is normal to the plane of the housing cover and off geometric center of the tray. The tray is rapidly oscillated about the pivot. Invented by Theodore E. Brown, Berwyn, Ill. Unassigned. Application Dec. 3, 1947. 4 Claims.

2,663,564. PAPER RULING, ASSEMBLING, AND STAPLING MACHINE is for automatically printing a paper web, cutting the web, and assembling the cut web together with inserts including a cover. The machine includes printing cylinders, rolls to carry a paper web, a cutter for cutting the web into sheets, and a registering mechanism associated with printing cylinders and the cutter for aligning the cutter edges with printed matter on the web, a sheet lapping mechanism, a stapling device operatively connected with a folder for connecting and folding assembled inserts, and a stacker for receiving assembled, stapled and folded sheets. Invented by Emil Karl Ernst Meffert, Schmalenbek, near Hamburg, Germany. Assigned to E. C. H. Will Liniermaschinenfabrik, Hamburg, Germany. Application Dec. 6, 1950. 5 Claims.

MISCELLANEOUS:

2,662,455. GRAVURE PRINTING OF TYPOGRAPHICAL CHARACTERS. This disclosure relates to typographical characters and character-bearing elements for use in the photographic composition of type matter for gravure printing processes. The character-bearing element has an opaque background against which is a typographical character. The typographical character is translucent except for an internal pattern of spaced, opaque lines extending throughout the character and terminating short of the outline of the character to leave a continuous translucent margin around the outline. Invented by Herman R. Freund, Brooklyn, N. Y. Assigned to Intertype Corporation, Brooklyn, N. Y. Application June 8, 1949. Divided and this application Nov. 6, 1951. 4 Claims.

2,663,019. SHEET ASSEMBLING MACHINE is adapted to serve an imprinting machine and to form a plurality of imprinted disassociated panels. The machine has a track beneath which there is a stacking bin to receive panels. A stapling head is associated with the bin and an oscillatory dumping platform having a clinching recess forms a common bottom closure for the bin for the deposit of the disassociated, stacked panels. A clinching block receives the stapling impact of the head which is directed, in descent upon the stacked panels, to drive a staple through them. The prongs of the staple are received in the recess for the clinching operation after which the platform is pivoted to discharge the stapled panels. Invented by Thomas A. Patty, Miami, Fla. Unassigned. Application Aug. 29, 1952. 8 Claims.

PLATEMAKING:

2,663,251. THE STEREOTYPE MOLDING of matrices for the production of stereotype plates of the type used in newspaper printing processes uses a flong which is placed upon a page form to be reproduced. An inelastic pressure is applied to the back of the flong to form the complete impression of the printing surface in the page form. While so pressed, the flong is subjected to a fluid pressure of less force than the inelastic impressing force to depress the flong into the non-printing areas of the form. Invented by William Baumrucker, Jr., Stamford, Conn. Assigned to Research Corporation, New York, N. Y. Application June 2, 1950. 4 Claims.

2,663,349. PRINTING PLATES, made of a thin magnesium alloy for relief printing may be fastened directly to a cylinder or may be first applied to a dummy of steel or similar metal to form a composite plate, which may be clamped to a cylinder. A bending mechanism is utilized for wrapping and tensioning the plate about the dummy, and for bending the edges of the plate around the dummy. Invented by Alexander J. Albrecht, West New York, N. J. Assigned to R. Hoe & Co., Inc., New York, N. Y. Application July 1, 1949. 3 Claims.

2,663,636. ELECTROPHOTOGRAPHIC PLATE AND METHOD OF PRODUCING SAME. The plate comprises a base plate and an adherent coating on one surface. The coating consists of a material selected from amorphous selenium and alpha monoclinic selenium uniformly dispersed in a binder which is a continuous film of uniform thickness of thermoplastic synthetic resin binding together individual particles of selenium and holding the layer on the plate. The binder has an electrical resistance higher than that of plate and selenium. The plate is prepared by mixing together selenium, binder and a solvent, spraying the mixture on the base plate, and evaporating the solvent. Invented by Arthur E. Middleton, Columbus, O. Assigned, by mesne assignments, to The Haloid Co., Rochester, N. Y. Application May 25, 1949. 13 Claims.

2,663,639. PRINTING PLATE PREPARATION. A new composition of matter for light sensitive coating of lithographic printing plates comprises a 6-18% water solution of albumen, a dichromate light sensitising agent, ethanedial in proportion of 2.5-5.1% ethanedial to dry weight of albumen sufficient alkali to adjust pH to 9, and an antiseptic preservative. Invented by William H. Wood, Mantua, O., and Dolor N. Adams, Lakewood, O. Assigned to Harris-Seybold Co., Cleveland, O. Application Jan. 28, 1950. 3 Claims.

PRINTING PRESSES AND EQUIPMENT:

2,662,471. INTAGLIO ENGRAVING PRESS employs a wiping pad and an endless belt in engagement with the pad. The pad may be moved against the belt and retracted. A die is moved against the portion of the belt which contacts the pad. A common drive operates the pad moving and retracting mechanism, the die moving mechanism, and a mechanism for inking the die. A second drive intermittently advances the belt past the pad. An electrical switch controlled by the common drive synchronizes the advance of the belt with the movement of the pad, die and inking mechanism. Invented by Edmund A. Gallis, Oceanside, N. Y. Assigned to The Cronite Co., Inc., New York, N. Y. Application April 6, 1950. 15 Claims.

2,663,254 and 2,663,255. MULTICOLOR JOB OR PROOF PRESS and MULTICOLOR PROOF PRESS provide for perfect register checking on a plate proof, since the sheet does not leave the gripper bars of the impression cylinder until all the colors are printed. The colors are printed in proper sequence, and the proof is printed as the finished product will be, and not reversed. Invented by J. Russell Parrish, Des Moines, Ia. Assigned to Meredith Publishing Co., Des Moines, Ia. Applications filed on Feb. 17, 1951 and March 3, 1951, respectively. 6 and 5 Claims, respectively.

2,663,256. VARIABLE SPEED DRIVE FOR PRINTING OF SHORT TEXTS IN ROTARY PRINTING MACHINES consists of a drive shaft of constant speed of rotation, and a driven shaft coaxial with the drive shaft driving the printing cylinder. An eccentric crankpin is supported by the drive shaft. A first externally toothed pinion is mounted loosely on the crankpin, and a second internally toothed pinion meshes with the first pinion coaxial with the driven shaft and drives the latter. A rectilinear guide is

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ntegral with the first pinion and carries a movable element which may be displaced and immobilized on a fixed path. Invented by Louis Jean Chambon, Paris, France. Assigned to Society Machines Chambon, Paris, France. Application May 15, 1951; in France, Aug. 26, 1946. 7 Claims.

2,664,045. INKING MECHANISM FOR PRINTER SLOTTER MULTICOLOR ROLLS is for use in a printer slotter having a printing cylinder and of the type covered by patent No. 2,121,105. It incorporates an ink supply, a form roll and a mechanism for transferring and spreading ink from the ink supply to the form roll. The form roll is located between the cylinders and has a plurality of selectable positions. The form rolls are arranged in one of the selectable positions to engage the ink pad on the printing cylinder. In another position, the form rolls engage an ink pad on a slotting cylinder. Invented by Gabriel Nicholas Rullo, Astoria, N. Y. Assigned to S. & S. Corrugated Paper Machinery Co., Inc., Brooklyn, N. Y. Application April 15, 1952. 6 Claims.

2,664,282. DRIER, useful for drying a printed web, employs a furnace having a chamber through which a web to be dried is moved in a predetermined path. A plurality of radiant type burners are supported in the chamber a predetermined distance from the path traversed by the web and a semi-cylindrical baffle is rotated from a position between the burners and the path to a position on the opposite side from the path of web travel. Invented by Carl P. Mann, Riverton, N. J. Assigned to Selas Corporation of America, Philadelphia, Pa. Application April 1, 1950. 7 Claims.

For Patent Research in the U. S. Patent Office, or a prompt estimate on any type of search, address INVENTION, INC. Munsey Bldg., Washington, D.C.

Pete De Sario, Asst. Foreman, Color Engraving, since July 27 at the Chicago *Tribune,* has been appointed Foreman, Pat Bresnahan, Supt., Color Engraving, has announced. De Sario, the first apprentice in the *Tribune's* color engraving department, joined the organization in 1931 and became a journeyman color etcher in 1941.

NEWS ITEMS

To Erect Plant—Clark Equipment Co. recently announced plans to erect a 145,000 sq. ft. assembly plant near Benton Harbor, Mich. According to George Spatta, Pres., construction will start immediately on a 100-acre tract of land, and the plant is expected to be in operation before the end of 1954. Products will be assembled at Clark's Buchanan, Mich., plant until the Benton Harbor plant is completed. Components to be assembled there will be produced at Clark plants in Buchanan and Jackson, Mich. All major components except the engine are manufactured by Clark's Automotive Div.

Fairchild International S. A., a wholly owned subsidiary, has been organized by Fairchild Camera and Instrument Corp. to correlate all its international operations, according to announcement by John H. Clough, President. This will include promotion of the Scan-a-Graver electronic engraving machine in foreign markets. An office for the subsidiary has been established at Robbins Lane, Syosset, N. Y. Its management will be under the direction of Russell H. Lasche, President, and F. V. Krummrich, Vice Pres.

To Attend European Trade Shows — Paul E. Fischer, Vice Pres. and Chief Engineer of the E. G. Staude Mfg. Co., Inc., leaves in April for Europe, where he will attend the British Industrial Fair in London, Graphic Arts Exhibition in Paris and the European Exhibition of Printing and Paper Converting Equipment (DRUPA) in Duesseldorf. He will be accompanied by Mrs. Fischer.

Fisher and Tobias Promoted—William W. Fisher and Robert A. Tobias have been appointed vice presidents in charge of operations and sales, respectively, for American Type Founders, Inc., it was announced recently by L. C. Edgar, jr., Exec. Vice Pres. Fisher will give functional direction to engineering and manufac-

FISHER TOBIAS

turing at the Mount Vernon, N. Y., plant. He also will assist Edgar in managing ATF business. Tobias has responsibility for sales, advertising, market research and sales training in the Elizabeth division. He was formerly director of marketing for ATF. Married, Tobias lives on a 120-acre farm near Princeton, N. J.

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WRITE FOR CATALOG NO. 10

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Swift Installed — C. C. Swift, Sales Representative of Sam'l Bingham's Son Mfg. Co., recently was installed president of the Indianapolis (Ind.) Club of Printing House Craftsmen. Other officers installed were: J. E. Bright and E. B. Byfield, First and Second Vice Pres.; A. B. Dorr, Treas., and L. W. Feltman and R. H. Simpson, Financial and Recording Secys.

SWIFT

PRESCOTT

Dale B. Prescott has joined Miller Printing Machinery Co. as a sales representative, according to an announcement by A. E. Searle, jr., Vice Pres.-Sales. He will represent the company in Michigan.

WILLIS

James G. Willis, formerly of Harris-Seybold Co., is now a member of the Ideal Roller & Mfg. Co., Inc. He will manage its new newspaper roller division and his headquarters will be in Chicago. Willis has had 20 years' experience in the letterpress and newspaper branches of the industry. He is known in the Graphic Arts industry and is an executive in the lithographic field. He managed the west coast branch for Harris-Seybold for the last three years, and previously was manager of its Minneapolis and St. Louis branches for five years. His father, R. P. Willis, was a newspaper publisher, and his grandfather, R. O. Willis, owned and edited one of the first newspapers in Nebraska. Willis is a member of the Craftsmen's Clubs, the National Association of Litho Clubs and the Supplymen's Guild.

NATALE

Natale Honored— Special dinner ceremonies were held recently by Heidelberg Eastern, Inc., to honor Technical Service Mgr. John Natale for his 25 years' service to the organization marketing the Original Heidelberg automatic platen press east of the Mississippi. Natale was presented a gift from the Heidelberg board of directors.

Pigment Colors Research Lab—A pigment colors research laboratory will be built by Du Pont at its Newark (N. J.) pigments plant. The laboratory will be devoted to scientific studies leading to the development of new colors for ink, paper, plastics, and other products. Dr. J. Nelson Tully is laboratory director.

Disposes of Printing Plant—The printing and stereotyping portion of Western Newspaper Union's business in the Denver (Colo.) branch was sold on Feb. 1 to Ralph Rauscher, who is operating the facilities under the name of Publishers Press, Inc. J. E. Patterson, formerly in charge of machinery sales in Denver, is now manager of the Denver office, which recently moved to 1433 Tremont St., Denver. The Southern Indiana territory formerly served by WNU, Indianapolis, Ind., has been transferred to the Chicago Printing Machinery Branch. Since March 1, Luther Paxton has covered this territory in addition to the Southern Illinois territory. He lives in Indiana.

Carnegie Tech Homecoming — Alumni of Carnegie Tech's School of Printing Management will hold a homecoming and seminar on the Tech campus April 9-10. Frank R. Sloan, jr., Pres. of the alumni group, recently announced that this year's Annual Printing Management Seminar will probably draw the largest audience in the 15 year history of the event. Purpose of the seminar is to provide a post-graduate refresher session for alumni, of which there are approx. 800 members, including 200 presidents and other top executives of printing establishments across the nation.

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Press Installed—Work has been completed on installation of a 32-page Hoe press at the Hilo, Hawaii, *Tribune-Herald*, according at Bus. Mgr. Lester A. Carpenter. Printing color on any page desired on any publication day is now possible. Other mechanical changes were reducing the column widths to 11.6 picas and changing to 3-pt. column rules. Also planned is the change to a 62-in. wide newsprint roll from the present 63½ in. roll.

Six-Color Single Stack Press—The first breadwrapper press of its kind, the Kidder 6-color single stack bow-type unit, was recently shipped to the Columbus, O., plant of the Pollock Paper Corp. Built by the Kidder Press Co., Inc., the press is designed to print multi-color wrappers for bread or frozen foods at 850 f.m.p. up to 72 in. widths. Cylinder sizes vary from 36 in. to 48 in. in circumference. The Kidder Press Co., Inc., also announces installation of a Double Stack Rotary Letterpress at Marathon Corporation, Menasha, Wis., for use in the production of bread and frozen food wraps, which is similar to the one mentioned above except it can be made to print eight colors.

Long Service—The Port Huron (Mich.) *Times-Herald*, in its Feb. 1 issue, carried an interesting article about the long service of Pressman Millard Shirts with that paper. On that day, Shirts began his 45th year of service in the pressroom. Comment is also carried in the same article that on May 26, Shirts will begin his 50th year as an employe of the *Times-Herald* and its predecessors. Mr. and Mrs. Shirts have three daughters, seven grand children and seven great grandchildren.

22 TECHNICAL PAPERS

Twenty-two experts on Graphic Arts technology have submitted papers for presentation at the annual meeting of the Technical Association of the Graphic Arts, slated for May 10-11, 1954, in Schroeder Hotel, Milwaukee, Wis. At this meeting, the sixth to be held by TAGA, will be stressed the application of science to solving problems in the printing industry.

Now comprising more than 300 technologists, membership in TAGA is open to technical men interested in improving the science of printing.

"So I walked up to the press and pushed the button..."

Honestly, I was a little jittery when the boss said he was going to add offset to our pressroom.

All my life I had been a letterpressman, and I had the doubts of most letterpressmen. I was sure that offset would not produce quality work; that the presses would be difficult to run and understand; that you'd have to be a chemist to operate them; that the boss would lose his shirt on the deal; that we'd have to lay off men who had been with us for years because they couldn't be retrained.

The only experience I had with offset was on a small duplicating machine on board ship during the war. I had never fooled with larger presses.

I personally worked with the erector while the first offset was installed and spent less than a week getting instructions. Actually, it now feels that I merely pushed a button, and I was on my own.

Of course, I've had some troubles. What pressman doesn't on any kind of new press? But for all-around simplicity, speed and performance I believe our present installation is tops.

I now supervise a battery of four Miller E.B.CO's, and practically every man in the letterpress room is eager to be assigned to that department. In spare time they are all taking lessons on running our Miller E.B.CO's. We have been kidding them on how easily we are turning out more thousands of impressions per day than the letterpress department. They are wisening up to what's ahead.

Offset will never do away with letterpress — but the two certainly work together in our plant.

Come around and watch our Miller E.B.CO's in operation.

MILLER PRINTING MACHINERY CO.
1103 Reedsdale St. Pittsburgh 33, Pa.

Copy and layout by
Mr. William Susie, Pressroom Supt.
Maran Printing Company
Baltimore, Maryland

Miehle Printing Press & Mfg. Co. announces that Marathon Corporation, Oswego, N. Y., recently installed a new Miehle No. 70 Cutter and Creaser.

Promotion of Harvey M. Michelson to sales supervisor for printing products was announced recently by Minnesota Mining & Mfg. Co. Michelson joined 3M in 1951. He will cover Michigan, Ohio, Western Pennsylvania, West Virginia, Kentucky and Tennessee.

R. Earl Mabry Appointed—George R. Keller Co. announces its appointment of R. Earl Mabry. He will make the office contacts and manage the warehouse. Mabry has worked in plants in both Charlotte, N. C., and Spartanburg, S. C.

Marquardt Resigns—R. G. Marquardt, Vice Pres. and Gen. Sales Mgr. of American Type Founders for the past seven years, has resigned, effective Feb. 5. Marquardt plans to move to Florida and enter business there in the near future.

Four Color Proof Press Installed by *Tribune*

Installation of a one-unit four-color proofing press speeded up operations of the Chicago *Tribune* color engraving department. The new proofing press, which registers a complete color proof in 1 min., supplements older equipment consisting of four separate color presses and requiring 10 min. to complete the same job. The new press also produces a page which is closer to the wet proof required by the *Tribune* pressroom, according to Pat Bresnahan, Color Engraving Supt. Operated by one man, the new press prints in register the yellow, red, blue, and black, and automatically returns the complete proof to the operator. The new proofing press makes it possible for the *Tribune* to produce 15 four color proofs and 5 sets of progressive proofs in 2 hrs. instead of the 4 hrs. formerly required, says Bresnahan.

Books

(Continued from Page 37)

Paulsen explains in the preface that the estimator must know why and with what frequency things occur in order to visualize the operations involved in preparing a sound estimate. He goes on to explain of classifying the operations of the Graphic Arts so that the estimator can catalog them as part of his working knowledge in building estimates of cost. The author accomplishes this in part by presenting a number of diagrams which graphically illustrate operations referred to in industry language, such as, work-and-turn methods, combination halftone and reverse line copy, stagger cutting, etc.

A manual of this size has its value increased with the inclusion of a complete index of subject matter such as may be found in *A Course in Estimating*. Supplemental material includes a Process Comparator, *PIA Photoengraving Specifications Manual, Basic Requirements for Electrotypes* issued by Intl. Assoc. of Electrotypers and Stereotypers, *The Art of Photoengraving* issued by American Photoengravers Assoc., and unit scales for photoengravings, electrotypes and nickeltypes. A paper weight calculator and type line point gauge are offered as helpful tools for estimating operations. It is planned to add paper samples at a later date.

In saying that this manual is truly an invaluable tool to both experienced and prospective estimators would almost be a conservative opinion. Its worth will be reflected in clearly defined costs and profits, as well as in customer satisfaction.

A Course in Estimating—By Henry A. Paulsen. Book consists of 226 plus supplemental material; page size, 8½ in. by 11 in.; enclosed in blue loose leaf binder with gold stamping. Inquiries concerning this manual should be sent direct to Printing Industry of America, Inc., 719 Fifteenth St., N. W., Washington 5, D. C.

Care and Use of Printers' Rollers

CARE and Use of Printers' Rollers is the latest technical bulletin to be published by the Research and Engineering Council. The bulletin was compiled by the Printers' Roller Committee under chairmanship of Lloyd J. Ford. Special recognition for assistance in compiling the report is extended to Don Crews, Morris S. Kantrowitz, E. A. Kilheffer and Charles Shapiro. Acknowledgement of others who assisted in preparation of the data is given to 70 others in all branches of the industry. In looking over this list, one is impressed with the wide range of men associated with printing plants, roller makers, ink makers, research organizations and press makers who assisted.

In the Foreword Council President Edward J. Triebe remarks that "This report is not intended to be a technical treatise on printers' rollers but rather is intended to provide basic information on which an in-plant program can be established to assure the proper care and use of rollers."

A brief summary of the Contents is as follows: (1) Types of rollers used in printing presses, what they are made of and operating position; (2) Characteristics of the different types of rollers; (3) Roller troubles and failures; (4) Cleaning; how rollers are cleaned and a list of fluids not harmful to rollers as well as a list of fluids which are harmful to rollers. (It is explained in a note on p. 6 that a laboratory study is under way regarding solvents and cleaners and until it is completed the Council is not in a position to provide suggestions or recommendations regarding particular types of solvents and cleaners which can be used most effectively in the cleaning of printers' rollers.) (5) Inks and rollers are discussed; (7) Data is given on the storage of rollers; (8) Handling and shipping; (9) Care of rollers during use; (10) In a tabulated appendix information is given on glue-composition roller conditions, their causes, and how they may be prevented and remedied. This valuable section of the R&E Council Roller Bulletin has been revised and brought up-to-date by the Intl. Printing Pressmen and Assistants' Union of North America.

Care and Use of Printers' Rollers—Published by the Research and Engineering Council of the Graphic Arts Industry, Inc., 719 Fifteenth St., N.W., Washington 5, D. C. Size, 8½ in. by 10 in., 36 pages, illustrated, punched for standard binder. Price $3 per copy to non-members of the Council.

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Special Composition Type Styles

A LOOSE LEAF specimen book of special composition type styles has been prepared by Type and Art of Cleveland. The book contains a number of reproduction proofs of foundry cast metal types, hand-set in letterer's color, furnished to layout size and sold by the word. Each specimen sheet presents a well executed example of the proper usage of the letter characters in relationship to eye appeal, harmony and balance in typographic composition. Usage of such composition can most certainly be placed in a category of high quality work where pre-eminence in type design is desirable.

Roy Rothstein of Type and Art states the foundry types which appear in the book have been gathered from many parts of the world as well as this country, restyled in part, or designed and cast exclusively for his company. A typical family series included in the book is known as Grotesque. It is shown in Light, Original, Square, Square Italic, Light Square, Page and Extra Condensed faces. Other types are known as Boxcar, Mechanical, Roy's Gothic, Transport and Modifications. The page size of the book measures 10 in. by 5 in. Additional styles will be made available for the booklet in the future. Specimen sheets are available by writing direct to Type and Art, 1375 Euclid Ave., Cleveland 15, O.

Photocomposing

ANOTHER in the long series of helpful technical books has been published by Lithographic Technical Foundation. The latest is entitled *Photocomposing* by Charles W. Latham. Latham states in the book's *Foreword* that photocomposing is nearly a half-century old but very little has been written about it. Those who have learned to operate these machines have had help from erectors and service men, but are largely self-taught or have learned from other operators.

Any good platemaker, states Latham, who is mechanically adept, and has the desire, can learn to operate a photo-composing machine. The section, *Operator's Procedure*, has been broken down by machine. So there will be no confusion, the procedures for both the Lanston and Rutherford machines have been covered. Essentially, both machines are covered in chapters on Layout, Register, Plate Register, Multiple Negatives, Nesting Forms, Contact, Photocomposing Troubles and the like.

The chapter (6) on Register is a valuable part of the book. One of the suggestions is that of a modified magnifier to be used in scratching in register marks by the retoucher. The modification of a strong ½ in. linen tester for this purpose is described and illustrated as well as a device for lining up marks on the register device. The book is well indexed.

Photocomposing—By Charles W. Latham. Size 5½ in. by 8½ in. Paper bound; 84 pages, well illustrated. Published by Lithographic Technical Foundation, 131 East 39th St., New York 16, N. Y. When ordering direct from LTF, the following prices prevail: To LTF members, $1.20 plus 18c handling and shipping charge per copy; to non-members, $1 per copy plus 18c handling and shipping charges.

Printing Equipment Engineer Classified Ads may be found on Page 99.

A Composition Manual

ONE of Printing Industry of America's Tools of Industry Series is the book *A Composition Manual*. While the work was prepared primarily for use for instruction purposes in the case of apprentices and young compositors, its use as a reference source should be frequent among experienced printing executives. Importantly, *Printing Equipment Engineer* feels that if a plant manager or superintendent reached his position originally through the pressroom, for instance, he will need some book to which he can turn for information about the composing room. Definitely, this book should be in each production or mechanical executive's library for that very purpose.

The book was prepared by Ralph W. Polk and Harry L. Gage. Acknowledgement is made in the introductory pages to a list of notable typographers and printing executives for their assistance and cooperation in preparing the text and illustrations.

The content of the book is so varied that it would not be possible to mention everything in detail. However, the four parts are as follows: Part 1, Introduction to Composing room Experiences; Part 2, Composition; Part 3, Related Information; Part 4 consists of Machines in the Composing Room, Linotype and Intertype, Monotype, Ludlow Typograph, Materials Makers. Under Accessory Mechanisms for Slug Typesetting Machines will be found Margach Metal Feeders, Monomelt, Teletypesetter, Type-O-Writer Keyboard, Ludlow Shell-Hi Slug Shear, Margach Lino-Slug Router, Mohr Saw, Morrison Slug Stripper, Rouse Band Saw, Ludlow Supersurfacer, and Mono-Tabular Broach.

In the Cold Typesetting section are discussed technical and economic reasons for cold type, typewriter mechanisms including the Justowriter, and Accessories of cold type composition, including Artype and Fototype Letters.

The section entitled Phototypesetting Mechanisms is devoted to classification of machines, Intertype Fotosetter, the ATF-Hadego Photocompositor, Rutherford Photolettering Machine.

A Composition Manual — By Ralph W. Polk and Harry L. Gage. Bound in blue buckram covered boards, size 8⅜ in. by 11⅜ in., 322 pages. Elaborately illustrated with figures. Price, initial copy, $35; additional copies, $10 each. Order direct from Printing Industry of America, Inc., 719 Fifteenth St., N. W., Washington 5, D. C.

Convention Plans

After considerable effort, Gen. Mgr. James R. Brackett, Printing Industry of America, and associates, have achieved a five year schedule for convention meeting times of that organization. The following annual convention dates and places have been established:

Nov. 15-19, 1954, Hotel Statler, Detroit, Mich.

Oct. 15-20, 1955, Chalfonte-Haddon Hall, Atlantic City, N. J.

Oct. 28-Nov. 1, 1956, Hotel Statler, Los Angeles.

Oct. 14-18, 1957, Hotel Morrison, Chicago.

Oct. 13-16, 1958, Hotel Statler, Dallas, Tex.

Printing Industry of America hopes it can establish advance dates for its other major meetings, including the midyear Board meetings and the professional conferences.

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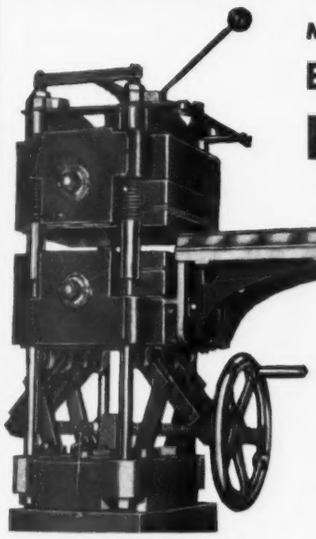

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Inspection Procedure

(Continued from Page 68)

(1) Clean up rubbish around the machine; check the guards on the flywheel, the cutting knife, the saw, etc.
(2) Wipe up excess oil; eliminate leaks, clean tapes, etc.
(3) Fuel OK? Fuses in order? Belt sound? Lights working?
(4) Lubricate moving parts and surfaces in contact; remove dust and grime, etc.
(5) Put oily rags in container; remove waste that may burn; don't smoke, etc.

After we have compiled a complete list of objectives, followed by procedures to attain those objectives, we still have the job of evaluating our procedures to be sure they are sound.

That just means one thing—establishment of standards for comparison.

It's all right to say: "Check the commutator in the motor to prevent power failure" (objective No. 3 above). That's part of a good program. It's quite another thing to compare the condition of the commutator with a standard which can be relied upon to keep the equipment going without interruption.

So, instead of checking let's establish the standards for a satisfactory commutator:

(1) No high mica
(2) Brushes beyond a minimum size
(3) Smooth chocolate colored commutator bars
(4) Satisfactory tension on brush springs, etc.

Now the inspector can look at the equipment, compare its condition with a standard of excellence, and then judge whether something (or anything) should be done with it.

When an inspection program is established to (1) Operate according to a predetermined schedule, (2) Enable the inspector to compare the condition of the equipment with a standard, and (3) Have something specific done in case a substandard condition is encountered—then and only then has a sound inspection procedure been established.

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1—Kelly Clipper Press 14 x 20
2—Miller Simplex Presses 20 x 26, late models
3—Miller High Speeds, 13 x 19
1—Miehle Vertical, V-50, size 14 x 20
1—Miehle Horizontal, straight-line del.
1—Miehle Pony Press, No. 17265, with Dexter Pile Feeder and E. D.
1—Web. Little Giant, 10 x 15 with E. D.
2—Goudy Envelope Presses
1—Post large model Envelope Press
1—Post reg. size Envelope Press
1—Heidelberg, 10 x 15
1—Pneumatic Automatic Check Imprinter
4—Kluge Units, 10 x 15
1—Kluge Unit, 12 x 18
2—Kluge 12 x 18 Combination Printers and Die Cutters
1—Babcock Automatic Unit, Model 5, 30 x 43, with Dexter Suction Pile Feeder and E. D.
4—C & P Craftsmans with Rice automatic feeders, 10 x 15
2—C & P Craftsmans with Rice automatic feeders, 12 x 18

Offset Presses

5—Multiliths, model 1250, 10 x 14
1—Multilith, model 1200, 10 x 14
3—Multiliths, model 1327, 11 x 17
3—ATF Web. Chiefs, 17 x 22
2—Harris, model L.S.B., 17 x 22
2—Harris, model E.L., 22 x 34
1—Davidson, model 221, 10 x 14
1—Remington Plasti-photer, model 515

Job Presses

1—Multicolor, 9 x 12
4—John Thomson Universals, 10 x 15

Proof Presses

1—Wesel, 18 x 24, Washington style
1—Wesel pedestal model 10 x 24 hand-operated
1—Wesel Power Driven 10 x 24
1—Vandercook, model 17, 17 x 25, self-ink.
1—Vandercook model 20, self-ink. 12 x 23
1—Vandercook full automatic, model 325-G, sheet size 24 x 47, power driven
1—Vandercook, model 2, pedestal model, 20 x 28
1—Vandercook, model 32, self-inking, sheet size 15 x 28
1—Hacker Register Punch

Embossing Presses

1—U.S.M.C. Power Embosser, model C
1—Peerless Bench model with gold leaf attachment
1—Peerless, model H2B, with gold leaf attachment
1—16" Peerless Roll Leaf Attachment
1—Peerless, model HB2X with double roll leaf attachment
1—Standard No. 9, 14 x 20, with 3-draw gold leaf attachment and printing inking attachment. Send for circular
1—Sheridan 4-A Embossing Press, 15 x 20, with 3-draw Peerless gold leaf attachment, electric head, sliding bed
1—Sheridan Arch Embosser, 15 x 14, with 3-draw mechanical roll leaf attachment, electric head, thermostat

Folders and Wire Stitchers

1—Mentges, 17 x 22, hand fed
1—Cleveland, model B, 26 x 40, with continuous feeder
2—Clevelands, model E, 17 x 22, with automatic feeders
1—Cleveland, model O, 19 x 25, with suction pile feeder

Folders and Wire Stitchers—Cont.

1—Cleveland, model W, 14 x 20, with automatic feeder
2—Baum, model 289, 19 x 25, with feeders
2—Baum, model 55, 14 x 20
1—Boston, model 17, stitcher with 6 heads
2—Rosback Gang Stitchers, equipped with 4 stations
1—Rosback Gang Stitcher with 6 automatic Davidson suction pile feeders

Paper Cutters

1—19½" Challenge on stand
1—26" Challenge lever paper cutter, style No. 265
1—30" Challenge lever paper cutter, new model
1—Seybold, Dayton model, 36", automatic clamp
1—38" Jones Automatic clamp paper cutter
1—50" 10-Z Seybold automatic clamp paper cutter
1—51" Perfecta, power back gauge
1—52" Oswego, power hand clamp
1—59" Perfecta, power back gauge

Saws

4—A-3 Trim-O-Saws with routers and jigs, size of table 28 x 28
1—Rouse No. 1 Band Saw
1—Richards Domore Pedestal Model Saw Trimmer
2—Hoe full page Stereotype Saws, with Trimmer Heads
1—Miller Bench Model Saw
4—Miller Saws, pedestal, Special Purpose, Margach workholders
1—Nolan Power Miterer
1—Kalamazoo Multiform Saw
1—Nelson Cost Cutter Saw, Model C, new (Agents for new Nelson Cost Cutter Saws)

Perforators, Punches, Drills, Corner Cutters

1—Latham Power Round Corner Cutter
1—Latham 28" Bar Perforator
1—Latham 28" Power Perforator
2—Rosback 30" Rotary Perforators, each equipped with 5 heads
1—Rosback 36" Rotary Perforator, equipped with 8 heads
1—Rosback Pony Combination Punch and Perforator
1—Rosback HI-PRO Power Paper Drill
1—Challenge Pedestal Drill, Michlke model
1—Wright Pedestal Model Power Paper Drill
1—Tatum Power Punch
3—Portland Single Head Punches

Typesetting Equipment

1—Blue Streak Linotype, model 8, serial No. 55581, with electric monomelt
5—Model 8 Linotypes, fan style magazine, 1 change
1—Model 3 Linotype
2—Model 5 Linotypes
2—Model H Intertypes, No. 12269 and No. 12270, 1 with quadder and self-centering device
3—Model C Intertypes, one with Mohr Saw, Electric Pots No. 8608, No. 9051
1—G2 Intertype Mixer with Mohr Saw, Electric Pot No. 13221
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Conference Dates

(With Organization Names and Principal Officers)

American Photoengravers Assoc. — 1954 Conf., Hotel Jefferson, St. Louis, Mo., Oct. 11, 12, 13. Pres., D. H. Murnik, Oakland National Engraving & Gravure Co., 307 Tenth St., Oakland 7, Calif.; Exec. Secy., Frank J. Schreiber, 166 W. Van Buren St., Rm. 430-A, Chicago 4, Ill.

ANPA Mechanical Conf. — 1954 Conf., Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., June 7, 8, 9. Chairman of the Committee, Joseph E. McMullen, Prod. Mgr., Milwaukee (Wis.) *Journal;* Mgr., ANPA Mechanical Dept., Richard E. Lewis, 370 Lexington Ave., New York 17, N. Y.

Book Manufacturers' Institute — 1954 Spring Meeting, Plaza Hotel, Apr. 8, New York, N. Y. Pres. Sidney Satenstein, American Book-Stratford Press, Inc., 75 Varick St., New York 13, N. Y.; Secy., Miss A. G. Watson, 25 W. 43rd St., New York 36, N. Y.

Fifth District Craftsmen's Conf. — 1954 Conf., William Penn Hotel, Pittsburgh, Pa., June 11, 12. Pres., Robert Edgar, Pres., Neyhart Printing Co., 244 Blvd. of the Allies, Pittsburgh, Pa.; Secy-Treas., Robert Wolf, Richardson-Taylor-Globe Co., 4501 Mitchell Ave., Cincinnati 32, Ohio.

Graphic Arts Trade Assoc. Executives—1954 Conf. Sinton Hotel, Mar. 27,28, Cincinnati, O. Pres. Richard A. Stout, Exec. Dir., Printing Industry of Atlanta, 881 Piedmont Ave., N.E., Atlanta, Ga.; Secy., Arthur L. Johnson, Graphic Arts Assoc. of Milwaukee, 704 W. Wisconsin Ave., Milwaukee 3, Wis.

Gravure Technical Assoc.—1955 Annual Meeting, Drake Hotel, Chicago, Ill., Feb-

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ruary. Exact dates to be announced later. Pres. John E. Hazel, New York *Daily News*, 700 Pacific St., Brooklyn 17; Secy.-Treas., Frank Sportelli, International Color Gravure, 39 W. 60th St., New York 23, N. Y.

Great Lakes Newspaper Mechanical Conf. — 1955 Conf., Sheraton-Cadillac Hotel, Detroit, Mich., Jan. 16, 17, 18. Pres., Frank Dassori, Pressroom Supt., Detroit *Times;* Secy.-Treas., Don Clark, Stereotype Supt., Grand Rapids (Mich.) *Press.*

Illinois Newspaper Mechanical Conf. — 1954 meeting, Hotel Custer, Sept. 25-26, Galesburg, Ill. Pres. Eldon L. Martin, Galesburg (Ill.) *Register-Mail;* Secy.-Treas., Wilbur L. Augspurger, Peoria (Ill.) Newspapers, Inc.; Chairman Supplymen's Committee, Joseph D. Goggin, Newspaper Publishers Supply Co., 1639 N. Lorel Ave., Chicago 39.

Intl. Assoc. Electrotypers & Stereotypers — 1954 Conf., Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 28-Nov. 1. 1954 Spring Conf., Sheraton-Gibson Hotel, Cincinnati, Ohio, April 6, 7. Pres., Carl N. Becker, Becker Electrotype Co., 144 N. Water St., Milwaukee 2, Wis.; Exec. Secy., A. P. Schloegel, 701 Leader Bldg., Cleveland 14.

Intl. Assoc. of Printing House Craftsmen — 1954 Conv., Bellevue-Stratford Hotel, Philadelphia, Aug. 8-11. Pres., Howard N. King, The Maple Press, York, Pa.; Exec. Secy., Pearl E. Oldt., Rm. 806, Transportation Bldg., 307 E. Fourth St., Cincinnati 2, O.; Convention Chairman, Ray Miller, 300 Valley View Rd., Media, Pa.

Intl. Graphic Arts Education Assoc.—1954 Conf., University of Colorado Campus, Boulder, Colo., early in July, exact dates to be announced later. Pres., Patrick F. Boughal, New York School of Printing, 461 Eighth Ave., New York 1, N. Y.; Exec. Secy., Samuel S. Burt, 719 Fifteenth St., N. W., Washington 5, D. C.

Intl. Typographic Composition Assoc. — 1954 Conv., Hotel LaSalle, Chicago, Sept. 23, 24, 25. Pres., Harold L. McGirr, Morris & Walsh Typesetting Co., Inc., 129 Lafayette St., New York, N. Y.; Frank M. Sherman, Exec. Dir., 1015 Chestnut St., Philadelphia 7.

Iowa Daily Newspaper Mechanical Conf. —Secy.-Treas., Paul F. Kamler, Mechanical Supt., Clinton (Ia.) *Herald.*

Kansas-Missouri Newspaper Mechanical Conf.—Secy.-Treas., Larry Miller, Kansas Press Assoc., 701 Jackson St., Topeka, Kan.; Sec'y., William Bray, Missouri Press Assoc., Walter William Hall, Columbia, Mo.

Lithographers National Assoc. — 1954 Conv., The Greenbrier, White Sulphur Springs, W. Va., June 8, 9, 10. Pres., William H. Walters, President, United States Printing and Lithograph Co., Old Country & Glen Cove Rds., Mineola, L. I., N. Y.; Exec. Dir., W. Floyd Maxwell, 420 Lexington Ave., New York 17, N. Y.

Lighting Can Be Hazardous

(This advice still is important)

(Abstracted from an address *Fire Prevention in the Printing Business* delivered before the 32nd Annual Convention of the Intl. Assoc. of Printing House Craftsmen in Boston, August 1951, by Edward N. Montgomery, Deputy Chief in Charge, Fire Prevention Div., Boston Fire Dept.)

FEW other businesses require the good lighting that the printing industry does. As various changes are made in the location of equipment, changes are required to provide light or power where it was not originally planned. To overcome this difficulty, long extension cords are used as circuit wires. They are invariably tied up with string, hung on nails, or may often be seen would about sprinkler pipes and heads. All of you have seen paper shades (instead of metal or glass) fitted directly to electric bulbs. These practices should be avoided as potential fire hazards. A qualified electrician should always be employed to alter or add to the electrical installation, as temporary fittings are too often the cause of fires.

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Mid-Atlantic Mechanical Conf.—1954 Conf., Penn-Harris Hotel, Harrisburg, Pa., Mar. 18, 19, 20. Jointly sponsored by the New Jersey Press Assoc. and the Pennsylvania Newspaper Publishers Assoc. Conf. Co-chairmen, Allen C. Spurgeon, Mechanical Supt., Uniontown (Pa.) Newspapers, Inc.; Jules L. Plangere, Mechanical Supt., Asbury Park (N. J.) *Press;* Conf. Dir., Theodore A. Serrill, PNPA General Mgr., 209 Telegraph Bldg., Harrisburg, Pa.

National Assoc. of Litho Clubs — 1954 Conv., Hotel Biltmore, New York, N. Y., May 7,8. Pres., Andrew Balika, Supt., Copifyer Lithograph Corp., 1771 E. 24th St., Cleveland; Exec. Secy., Sol D'Allesandro, Supt., Horn & Norris, Inc., 2729 Prospect Ave., Cleveland.

National Assoc. of Photo-Lithographers—Pres., A. J. Fay, 75 Varrick St., New York, N. Y.; Exec. Vice Pres., Walter E. Soderstrom, 317 W. 45th St., New York 36, N. Y.

National Printing Equipment Assoc., Inc. Pres., Robert B. Tullis, Pres., Miller Printing Machinery Co., 1101 Reedsdale St., Pittsburgh 33, Pa.; Secy., James E. Bennet, 140 Nassau St., New York 38, N. Y.

National Safety Council Printing and Publishing Div.—Gen. Chairman, Peter J. Bernard, Director of Personnel and Safety, H. Wolff Book Mfg. Co., 508 W. 26th St., New York 1, N. Y.; Staff Rep., Fred Lubet, National Safety Council, 425 N. Michigan Ave., Chicago 11.

New England Mechanical Conf. — 1954 Conf., Hotel Statler, Boston, Mass., Oct. 16-17. Pres., J. William Powers, Mech. Supt., Burlington (Vt.) *Free Press;* Secy.-Treas., Walter C. Crighton, Comp Room Supt., New London (Conn.) *Day.*

Northwest Mechanical Conf.—Pres., John R. Copeland, Production Mgr., Minneapolis (Minn.) *Star* and *Tribune;* Secy.-Treas., Ralph Carson, Dunwoody Industrial Institute, Minneapolis, Minn.

Pacific Mechanical Conf. — 1954 meeting, Multnomah Hotel, Portland, Ore., Sept. 17-19. Pres., Wm. E. Gibbons, Prod. Mgr., Portland (Ore.) *Journal;* Secy., Don Newhouse, Prod. Mgr., Portland (Ore.) *Oregonian;* Chairman Supplymen's Committee, Intertype Corp., Portland, Ore.

Printing Industry of America—1954 Conf., Hotel Statler, Detroit, Mich., Nov. 15-19. Pres., James J. Rudisill, Rudisill & Co., Lancaster, Pa.; Gen. Mgr., James R. Brackett, 719 Fifteenth St., N.W., Washington 5, D. C.

Research and Engineering Council of the Graphic Arts Industry, Inc. — 1954 annual meeting, Kalamazoo, Mich., May 12-14. The 1955 meeting to be held on May 12-13, city and hotel to be announced later. Pres., Edward J. Triebe, Vice Pres., Kingsport Press, Kingsport, Tenn.; Exec. Secy., John Reed, 719 Fifteenth St., N.W., Washington 5, D. C.

Screen Process Printing Assoc. — Pres., Joseph Grossman, Masta Displays, Inc., 230 W. 17th St., New York 11, N. Y.; Secy., Dan Novak, 549 W. Randolph St., Chicago 6.

SNPA (Eastern Div.) Mechanical Conf.—1954 Conf. tentatively set for Aug. 23, 24, Montgomery, Ala. Exact dates and hotel to be announced later. Conf. Chairman, C. Leroy Ray, Mechanical Supt., Winston-Salem (N. C.) *Journal* and *Sentinel;* Secy., Ray B. Crow, Southern Newspaper Publishers Assoc., P. O. Box 1569, Chattanooga 1, Tenn.; Chairman of Mfrs. and Suppliers Group to be announced later.

SNPA (Western Div.) Mechanical Conf.—Secy., Walter Johnson, jr., P. O. Box 1569, Chattanooga 1, Tenn.

Technical Assoc. of the Graphic Arts—1954 Conv., Schroeder Hotel, Milwaukee, Wis., May 10, 11. Pres., Richard F. Shaffer, Pratt Institute, 215 Ryerson St., Brooklyn 5, N. Y. Secy.-Treas., George S. Hammer, 8 Cherry St., Marblehead, Mass.; Convention Chairman, J. L. Roser, Milprint, Inc., 4200 N. Holten St., Milwaukee 1, Wis.

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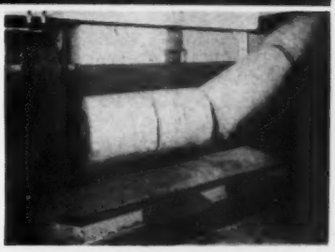

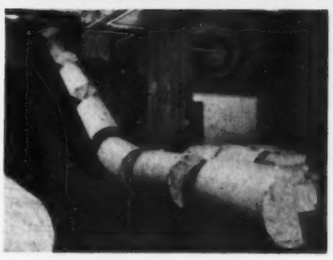

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Beveridge Dry Mats

That ol' debbil—acid

(Continued from Page 52)

stalled 125 ft. of 2 in. Pyrex glass pipe for carrying spent etching solutions from the etching machines to a diluting tank to the floor below (Fig. 2). In this installation, the glass drain pipes flow off the spent liquid from two copper and one zinc etching machines and two etching sinks through the floor, along the ceiling to a ceramic diluting tank. In the tank, water from plate coolers and other equipment dilutes the spent acid before it flows into the iron pipe waste lines. In this particular installation, the etching machine drain cocks open directly into the Pyrex reducers. Included in this installation is a Pyrex trap for each of the etching machines.

Approximately two years ago, Corning Glass Works made improvements in its glass pipe to make it stronger, principally by a tempering process. The pipe is highly rated as to chemical stability and thermal shock. It may be handled and installed similarly to regular pipe.

It is stated that this product is in use in plants, among others, as follows: Empire Photoengravers, Rochester, N. Y.; Chicago *Tribune*, and Industrial Engraving, Easton, Pa.

Pyrex glass pipe is supplied in 10 ft. lengths in 1 in., 1½ in., 2 in., 3 in., 4 in. and 6 in. i.d. Fittings suitable for directing the position of the pipe are also available. Corning states Pyrex glass is highly resistant to most acids excepting hydrofluoric.

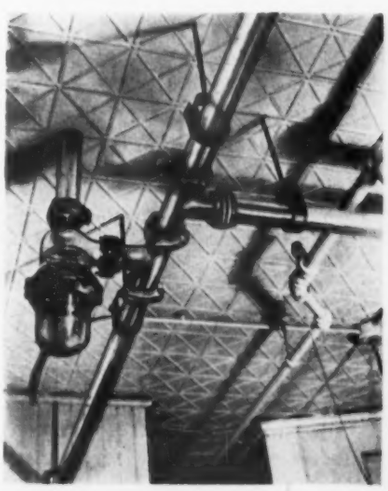

Fig. 2.—View of ceiling suspended Pyrex glass drain line in a photoengraving plant. The etching room is on the floor above. Here is shown a section of the 125 ft. drain assembly for spent photoengraving acid solutions. Pipe is furnished in inside diameters ranging from 1 in. to 6 in. inclusive. The trap is readily dismantled for cleaning.

The tightly covered tank is filled with limestone of the size of chicken gravel, or road gravel No. 6, or highway grade limestone No. 9. Manufacturer states the size of the stone particles is not critical, as any good limestone up to 1 in. size may be used. Limestone may be added to the tank once or twice a week to maintain a level of approx. 8 in. from the top of the tank. Chemco explains that with this equipment, nitric acid from one or two etching machines reacts with limestone to form calcium nitrate and carbonic acid. Air bubbles decompose the carbonic acid to water and carbon dioxide gas. It is also explained that drainage from the tank itself to the disposal lines is not critical with respect to relocating present acid resisting pipes. The neutralizer operates chemically to increase the pH of nitric acid waste to a level which leaves the waste harmless to ordinary plumbing.

Fibre Acid Drain Pipe

Since preparation of the above article about glass acid drain piping, a drain pipe fabricated from fibre material has been announced. (See February issue of *Printing Equipment Engineer*.) In 1946 an experimental acid drainage line was installed in the plant of the Schroeder Engraving Co., Milwaukee. This consisted of 4 in. L. M. Fibre Pipe. In 1952, the

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Reduce:
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- Load on drive motor
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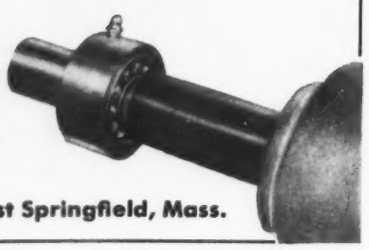

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PRINTING EQUIPMENT *Engineer*
1276 W. 3rd St., Cleveland 13, O.

company installed a section of 6 in. fibre pipe for venting a zinc etching machine. Pres. A. W. Schroeder recently reported satisfactory performance of the fibre installation.

Materials Handling

(Continued from Page 48)

An Elwell-Parker tiering fork lift truck with extra long forks can be used for handling rolls of paper into and out of the warehouse. In Fig. 5 is shown a power truck picking up a load of supplements which have been counted, bundled and stacked on a four-wheel dolly. Instead of pushing the dolly around manually which is slow and awkward it is picked up bodily by the lift truck and taken quickly and easily to its destination. Open-end racks designed for quick loading and emptying, for transportation through the bindery, may be handled similarly. Skidloads, each containing 3000 big city telephone directories may also be handled by one of these trucks.

The Charleston (W.Va.) *Daily Mail* decided that to be sure of always having an adequate supply of newsprint on hand it was necessary to purchase and stock a warehouse across the street from its plant. This meant transporting the heavy rolls some 200 ft. to the pressroom. To do this, to unload trucks at the warehouse and to stack them in storage without wasting space, an Automatic Transportation Co. Transrider stacker truck was purchased. With it the 1575 lb. rolls, 36 in. diam. by 66 in. long, can be handled directly on the forks without pallets or special grab equipment. An executive of the paper has stated that handling with this equipment is so much faster than the old method of using hand trucks that there is no comparison. In addition, there is a considerable reduction of damage to the rolls—an important item with the present high cost of newsprint and its scarcity in time of war.

George F. McKiernan & Co., Chicago printer and lithographer, has mechanized its handling to a large extent and considers that the expense is fully justified. This company has three electrically propelled and operated Automatic Transportation Co. hand trucks seen in Fig. 7. Two of these are lift trucks and the third is a stacker.

The lift trucks (trade name Transporter) are used to handle paper from delivery highway trucks, to the elevator and then to storage, from storage to the presses and finished work from the pressroom to the shipping department. The last operation is shown in Fig. 7. These Transporters were also used to load and unload equipment when the company moved to its new plant. Four men with the two motorized hand trucks did the job where it would have taken a crew of eight to do the work manually. The saving realized on this job alone paid for both trucks.

The third motorized hand truck is a stacker (known as a Transtacker) and is shown in Fig. 8. The savings it has effected are phenomenal, amounting to $4400 per year on an investment of $1800. In the first place, one man with

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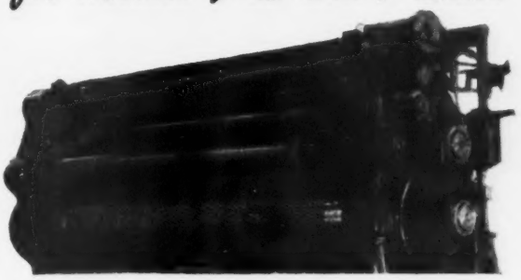

Western Printing Machinery's Extra Color Letterpress Unit for Miehle flat bed presses is the answer for low cost addition of third and fourth colors.

Precision built in several sizes, it will make a three or four color press of any standard 2-color Miehle flat bed. Production specifications are the same as the press to which it's permanently attached. Synchronization is perfect. Only minor changes are required for its installation.

This unit is low in cost and requires no additional floor space as it is mounted on top of the Miehle units. Operates efficiently and economically with the Miehle.

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the truck does the work of handling certain types of stock with much less physical effort. In the second place, the higher and more orderly stacking of paper stock and finished goods has resulted in adding about 25% to the storage area without using any more floor space.

Another use of the Transtacker is used in the bindery of F. N. Volkert & Co., Chicago, where heavy loads are held at the operating level of a trimming machine. The platform of the truck is raised as the pile of paper diminishes in height, so that a great deal of time and labor are saved and danger of accidents is eliminated.

A practical adjunct to the stacker in the McKiernan plant consists of 16 tiers, or racks, on which much of the 30 to 40 different sizes and grades of paper which are kept in stock are stored. A rack can hold six cases of paper stock or four partial skids. A case or skid can be placed on a rack, or removed from it without disturbing anything else, which would not be possible if the materials were stacked on top of each other.

Special rollers on the stacker platform and on the edges of the racks make it easy for the truck operator to roll cases on or off. In Fig. 8 is shown the stacker placing a partial skid of paper on top of a rack, while a partial skid is on the bottom and two cases on the middle tier. This illustrates how simple it is to handle different grades of stock without disturbing anything else.

(To Be Continued)

Printing Equipment Engineer Classified Ads may be found on Page 99.

Maybe Time to Build New

(Continued from Page 47)

taken to indicate profound faith in Divine Providence. In many, many instances, items of production equipment have been located, not with reference to their proper relation to workflow, but with respect to the ability of the floor to support them. The floors of a new building can and should be so designed that no thought of floor strength need enter into the placing of production equipment.

Methods and Materials Improvements

During the years since many of our existing buildings were constructed, the advances and developments in materials and methods of construction have been tremendous. Concrete, now one of our most familiar and widely used materials, was used but little (and timidly) in many buildings still in active service. In some of our older buildings, cast iron rather than steel was used as a structural material. While cast iron still has many uses in construction, improvements in the manufacture and availability of steel have given it a front place among construction materials. The use of these modern materials and methods makes possible wider spans and fewer piers and columns to interfere with production

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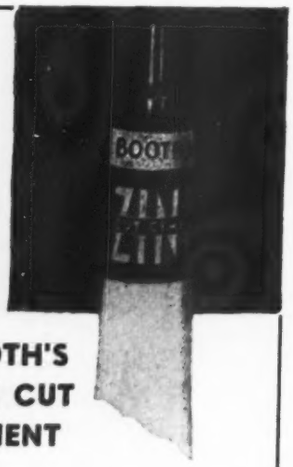
In materials for floors, walls, roofs and ceilings the developments have been even more spectacular. From the standpoint of improved operating conditions, maintenance, and comfort they add much weight in favor of new construction.



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Floors bear a direct relation to production, and there are available flooring materials suitable for each and every department of a printing plant. Some of them, of course, are adaptable to alteration work and can be installed in an existing building, but in new construction the choice of the right floor for the right operation is unhampered.

Tailored Integrally

What has been said of floors is, in large measure, true also of wall materials. It is possible to provide each department with walls which meet its service demands, are durable and require minimum maintenance. Roof and ceiling construction materials are also available which provide, in the same material, structural strength, thermal insulation and acoustical correction.

While many of the items to which we referred as improvements in building and plant equipment are also of utility in the modernization and expansion of existing buildings, they will be employed most satisfactorily when they are tailored as an integral part of a newly constructed building. Among these, mention should be made of lighting, power distribution, heating, ventilation and air conditioning, sanitary facilities, elevators, material handling equipment and many others. It is clearly obvious that the more closely these features are integrated with production planning and construction, the greater the probability of complete satisfaction from their service.

Site and Location

Site and location is a twin subject on which present comments must be general. The importance of location varies widely with the type of operation, the product, etc. Many operations are located ideally at present and it would be difficult to effect improvement. In many instances, however, environmental changes have adversely affected the location. Such matters as neighborhood changes, traffic developments, property values, etc., frequently present problems. The trend toward a perimeter location with plenty of area for light and air, parking, etc., rather than a close-in location, must also be recognized. Convenience with respect to railroad trackage, truck highways, or even waterways, are items of importance to some operations. Site, while an inseparable consideration with location, presents its own requirements. The size, shape and topography of the site bear an important and direct relation to planning and, whatever the requirements of location may be, it is the part of wisdom to explore the possibilities of good production layout before any site is acquired. It frequently happens that two apparently similar sites offer widely different possibilities for layout when carefully analyzed. It is good business to avail yourself of the services of your architect-engineer at this stage rather than to buy the site and hope that it will afford a good layout. That preliminary service will cost you little, if anything, and may mean a vast difference in operating layout and utility.

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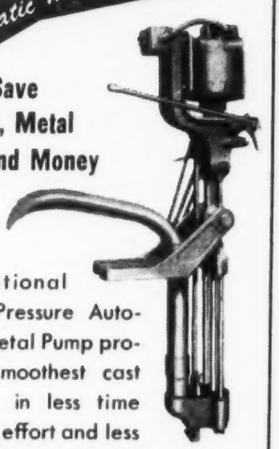

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Importance of Analysis

Another advantage of some pre-purchase study of the layout possibilities of a site lies in the fact that such an analysis of space needs will disclose whether areas are available of sufficient extent to accommodate the activities which should not be separated for, as we have previously noted, physical proximity and proper sequence are of great importance for many printing and publishing operations. Planning skill and inventive genius can achieve some noteworthy results, even with a site which offers more challenge than possibility, but the same skill applied to a promising site can do a great deal more.

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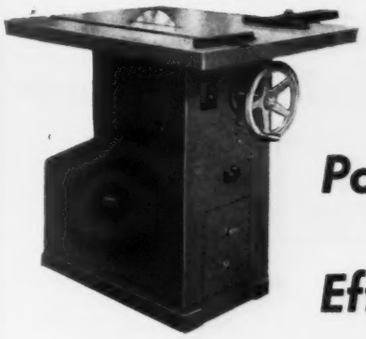

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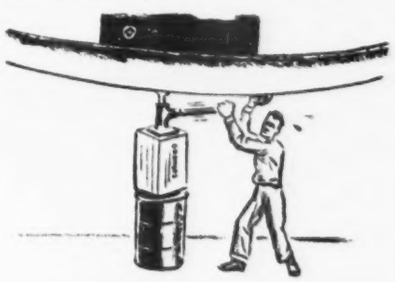
Anyone who has carried out a program involving the remodeling of an existing building knows how difficult it is to forecast the cost of such work. There are many unpredictables; things behind the paint and the plaster which may show up only after the work has begun. No experienced builder will ignore the possibilities of such a discovery and, if he is willing to quote a fixed price for the work at all, will include in it such an item of contingency as will cover the risks involved. That is one item of financial hazard. Another lies with the owner of the building, and his tendency to enlarge the scope of the operation as it proceeds. One change seems to call for another, and before he is aware of it he has so substantially increased his investment that it approaches the cost of new construction.

If You Are Sure—

Not all modernization programs turn out that way, but enough of them do to justify repeating the time worn counsel that unless you can be sure, very sure, that you're not going to end up buying a new building but taking delivery on an old one, you'd better not start. A competent and experienced builder can very accurately estimate cost on new construction and, in most instances, will enter into a contract with you to deliver a finished building for a fixed sum. Now that materials are becoming more readily obtainable, and work can be planned and scheduled efficiently, most builders are willing to bid competitively and to enter into fixed sum contract for new work.

At the time when many of our existing buildings were constructed, building codes and similar regulations were much less demanding than they are today in



most communities. In consequence, many buildings now in use are sub-standard with respect to stairways, means of exit, sanitary facilities, etc. So long as these deficiencies did not come to the attention of the authorities, or were not of such critical importance to warrant orders for their correction, they were allowed to continue. In most instances, however, when major changes in such buildings are made, it is normal for the authorities to require that all sub-standard features be brought into compliance with the law as a part of the improvement program. If this requirement is not foreseen, these changes can add substantially to the cost of the program.

What They Can Do

(Continued from Page 46)

considerably more accurate than any work in process figure arrived at by bookkeeping dead reckoning. In order to estimate physical inventory, good housekeeping is important.

Once the printer has decided where his market is he must acquaint himself with printing equipment available in today's market and as well as he can with printing equipment which will be developed in the near future.

Where there is much work that can be done cheaply by his customer and rather expensively by himself, he must satisfy himself that this is not the type of work he is going to do. On the other hand, he must realize his actual advantages. When it comes to the operation of equipment which must be kept busy a large part of the time in order to pay for itself such advantage is manifest. While his customer might compete successfully with him in the operation of a Multilith press, it is extremely unlikely that it would pay this same customer to install even the smallest web press. A web press not only uses up paper awfully fast, but requires a great deal more "know-how" for its operation. This is attested to by the fact that about 25% of one type of small web press the presses are not being operated advan-

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tageously by the printers to whom they were sold, chiefly because these printers could never obtain or train the necessary personnel. On the other hand, there are a number of relatively small printers who have installed high speed equipment and who, through perseverence have mastered its operation. These are in a much better competitive position than those who depend on multipurpose, easy to operate, machinery.

Increase in Cold Typesetting

With the increase in offset printing, we may expect, we believe, a continuation of the trend noted above, viz.: More and more composition being done by cold typesetting methods in the offices of large printing consumers. Will this mean less work for the commercial printers? We do not believe so. With the facilities at hand for producing cold composition, we feel that the tendency will be for the consumer of printing to make more and more use of these facilities and to improve the quality of such material as interdepartmental forms, instruction manuals, price lists, and a great deal of work which had previously been done by mimeograph or similar duplicating methods.

Printer's Presswork Likely to Increase

If we have interpreted the trend correctly, then the commercial printer will increase his presswork while he loses composition. It will be necessary, however, for him to improve his pressroom facilities to the point where he can attract business because it will no longer follow the line of least resistance out of his own composing room. He must bear in mind the Montreal story quoted above. His approach to his customer must be along these general lines: "Now that you have the facilities for doing your own composition right up to the point where it is ready for the camera, why not let us do a printing job that is worthy of this composition? We can do it for you at a little more than the cost of mimeographing."

Heart of the Problem

Of course, the printer must be able to make good on his promise and therein lies the problem. It will be noted that even in Montreal over the period when private plants were installing 80 small duplicating machines, commercial printers installed 24 and presumably were able to use these advantageously.

How Equipment Worked Out in Two Plants

Any attempt to introduce small duplicating machinery in the shop of the commercial printer may result in something between two extremes, both of which are quoted from actual experience. The equipment under consideration was a Multilith press. In one plant the attempt at installation was completely unsuccessful. The pressmen objected to the press on the ground that it was a "toy" or "a piece of office equipment" beneath their consideration. In another plant, however, the installation was sold to the employees on the basis that if office help could operate the equipment satisfactorily, anybody with a knowledge of printing could operate it twice as well. The equipment was purchased without motors, the printer installing motors of his own of twice the horsepower ordinarily supplied. The presses were geared up to run at twice their advertised speed. This company is now doing all of its imprinting on this type machine at a speed of 11,000 impressions per hour. A plate change requires 2 min. This printer has something which is pretty hard for competition, including the private plant to equal.

Engineer's Viewpoint is Practical One

There is much truth in the adage that "a sloppy shop produces sloppy work". It is highly desirable to supply the worker with a clean place to work. In order that he may turn out satisfactory production day after day, he should be made as com-

Production and Mechanical Executives are invited to submit to the editor informally in a letter devices which have helped production in their plants.

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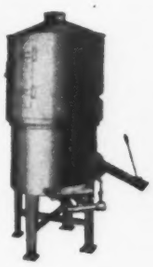

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fortable as possible, consistent with the requirements of the job and with the unit cost of production.

We have deliberately added this qualification because our point of view is that of the engineer and not the social worker and, since any improvements aimed at benefitting the employee must in the long run either be self-liquidating or constitute a handicap to the company in a competitive market.

Plant Conditions Improvements

Horatio Alger pointed out that it is not always the youth blessed with the greatest material advantages who becomes the community's most valuable citizen. It is equally true that it is not always the company which affords its employees the most comforts and conveniences which reaps the greatest rewards in the way of production.

Improving conditions in the average plant will not in itself improve production. In fact, many employers report decreased production per man hour compared with records of 20 years ago, in spite of better working conditions.

Improvements Must Be Self-liquidating

In some plants the "social welfare" angle of manufacturing has been so stressed that it seems consideration of production and profits has disappeared. If the idea becomes current that the manufacturing organization is being run solely for the comfort and entertainment of its employees the same employees can hardly be blamed if they lose sight of the importance of producing a day's work in keeping the manufacturing organization in existence.

It should be emphasized, we believe, to the operative that while improvements are instituted for his greater comfort and convenience the only thing that makes such improvements possible is the profit shown by the company on its operations and, that for the assurance of future improvements in this direction it is necessary that all such ventures be self-liquidating.

Such factors as humidity, temperature, ventilation, light, noise and vibration through their combined effect on the individual can, unquestionably, influence his production in both quality and quantity. Standards of comfort have been revised upward considerably in the past 20 years. Factors which had been given little thought two decades ago, such as noise and vibration have been studied recently for their effect on human comfort and

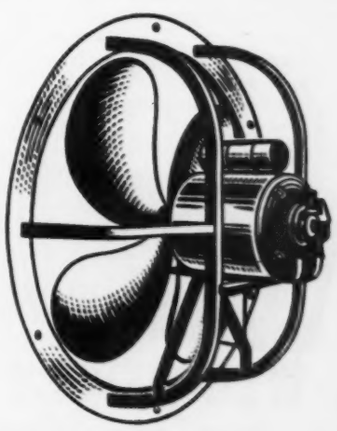

Fig. 3.—This is one of many kinds and types of ventilating fans. Fans are effective for exhausting fume laden air from mechanical departments. Moving air also is a valuable condition in daily plant operation simply because of its contribution to a person's well being during working hours.

RUBBER PLATE USE ECONOMICAL

In some publication houses using rubber plates on every job which has the remotest chance of being reprinted will be rubber plated and the rubber plates held in stock instead of the forms. This, in the long run, has proved much more economical than printing from the forms themselves and tying up the type. The printer might learn something from this practice.

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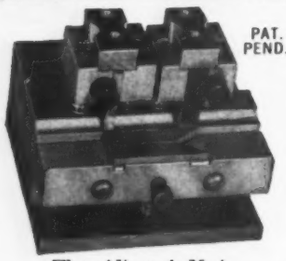

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subsequently on production. Intensity of illumination standards have been increased until today the minimums are set at a point about 100% above that which we used to consider satisfactory.

Lighting Suitability Required

In spite of the difficulty encountered in relating production standards to lighting or any other comfort variable, it has been found possible to measure accurately the effect of lighting levels on actual seeing ability, eye fatigue and other effects produced by the use of the eyes under varying degrees of illumination. In supplying the worker with a standard level of lighting comfort, something more than the actual intensity of illumination at the work place must be considered. Two other such considerations are the nature of light reflecting surfaces within the field of vision and the nature of the lighting itself.

In the printing industry, there are many operations varying from pushing a truck to fine inspection or fine engraving, all of which required different degrees of lighting.

In the movement of materials about the plant, it is necessary simply to afford lighting which prevents accidents. The intensity of illumination required for this purpose may be as low as one to five foot candles. Prolonged work on fine inspection or engraving on the other hand, may be such as to require illumination of 100 foot candles. The required intensity of illumination will depend further upon the age of the individual worker, the general rule being that as age increases visual acuity decreases.

It is just as important to secure absence of glare at the work place as it is to secure a standard intensity of illumination. The effect of glare is well known by anyone who has driven an automobile at night against an uninterrupted procession of headlights. An unshaded lamp producing a glare of 5 foot candles at an angle of 20 deg. above the line of sight has the effect of reducing the intensity of illumination on the object as much as 53%. If this angle is decreased to 5 deg. the light loss will amount to 84%. It is not only from unshaded lamps that we receive glare. Any smooth painted surface will produce a similar effect. The higher the reflected value of the paint color, the more effective the glare. A flat coat of paint which defuses the reflection produces less glare than a gloss coat and, for this reason, is more desirable, although it presents the problem of being harder to keep clean. A good general rule is to keep highly reflective surfaces well above the line of vision, confining the use of a shiny white to ceiling areas and, in general, areas at least 8 ft. above the floor level.

Light Background Colors

Light background colors, because they reflect more light or produce a higher intensity of illumination under the same lighting conditions than dark backgrounds, are ordinarily desirable. Usually, a light green or light gray will furnish a sufficient light reflecting medium without producing glare. It is important, too, that there be not too great a contrast between objects in the range of vision. A dark work bench and a light background or a light work bench and a dark background present a bad combination. This rule does not apply, of course, to very small areas such as the type on a printed page or a fine thread which must be worked with. In such cases, as a general rule, the greater the contrast the better.

Air Conditioning

The important considerations in air conditioning a plant are temperature and

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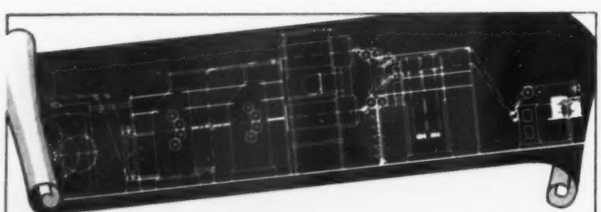

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humidity. It is rather difficult to define the limits of either under which comfortable operation is possible because it depends rather upon a combination of the two.

Since the human body has an air conditioning system of its own which depends for cooling upon the evaporation of moisture from the skin surface, bodily comfort will depend not only upon the dry bulb thermometer temperature but also upon the humidity of the atmosphere which in turn controls the rate of moisture evaporation of the skin. A rule of

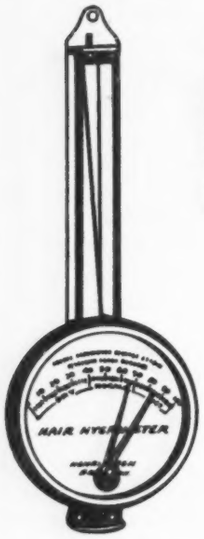

Fig. 4.—This is a Henry J. Green Hair Hygrometer. These instruments are used to obtain percentage of relative humidity.

thumb measure of the effective temperature may be obtained by taking the mathematical mean of the wet and dry bulb thermometer readings. There is one other factor which enters into the matter of comfortable atmosphere because of its effect on the human air conditioning system and that is the effect of ventilation. Any movement of air which results in bringing fresh dry air in contact with the skin will, of course, increase evaporation. Tests made in some plants in circulating the air by means of ventilating fans on alternate days during the six weeks in the summer showed differences in production of as much as 10% between the days when the fans were running and the days when they were not.

Good Housekeeping— Its Importance to the Plant

Good housekeeping in itself will stimulate the morale of the worker and will, of course, simplify the flow of work through the shop. Every so often, the printer should do a complete overhaul job in putting his house in order. This should include, of course, the reduction wherever possible of the number of forms which are being held standing. Frequently, the printer believes that any job for which he has the type standing can be produced without any more composition cost than simply locking up the form. He should make an honest appraisal of the actual cost of keeping forms standing, including the time spent in cataloging, locating a form to be used again, etc., and compare this with the real savings he has made on the comparatively few jobs which are utilized again. He may find that, all in all, he would have been better off to kill all jobs completely.

Long Range Equipment Plan

When he has decided how much of a printing job he will do, he should make himself familiar with every possible piece of equipment which can be used for this purpose and should formulate long-range plans for ultimately acquiring the best of such equipment. One of his worst pitfalls is acquiring equipment which is better than he has but which falls short of what he should have.

The printers in the worst position today are not those whose equipment is written off the books and who have a nice cash surplus in the bank, but those who have acquired more modern equipment which represents a choice which threatens to be outdated by tomorrow.

Putting the House in Order

He should take every possible step to put his plant in order and furnish his operatives with all the comforts consistent with high standards of production. He should see further, however, that these improvements are self-liquidating. He should determine whether all clerical labor performed, including that performed by non-clerical workers pays for itself. If it does not, he should eliminate it as far as possible. Every move he makes should be in accordance with his long-range plans and no steps should be taken which do not fit in this general picture. He should remember that his worst enemy is not equipment which has already paid for itself and which he knows is obsolete, but equipment which represents simply a half-way measure on the road to his goal.

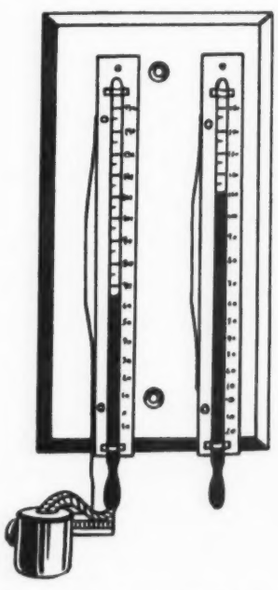

Fig. 5.—Henry J. Green Wall Type Psychrometer consisting of dry and wet bulb thermometers for measuring the amount of moisture in the air.

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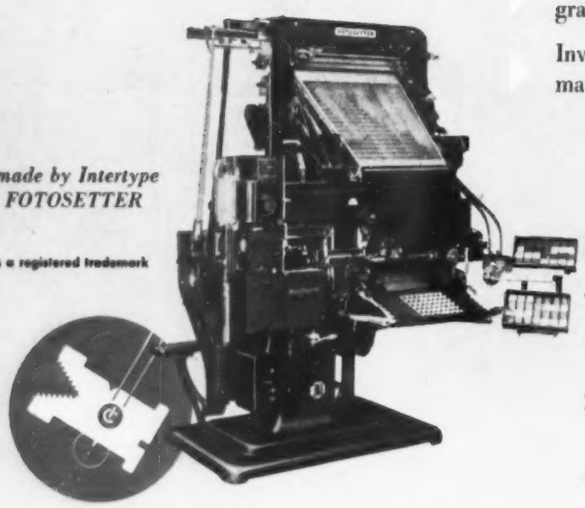

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